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University of California
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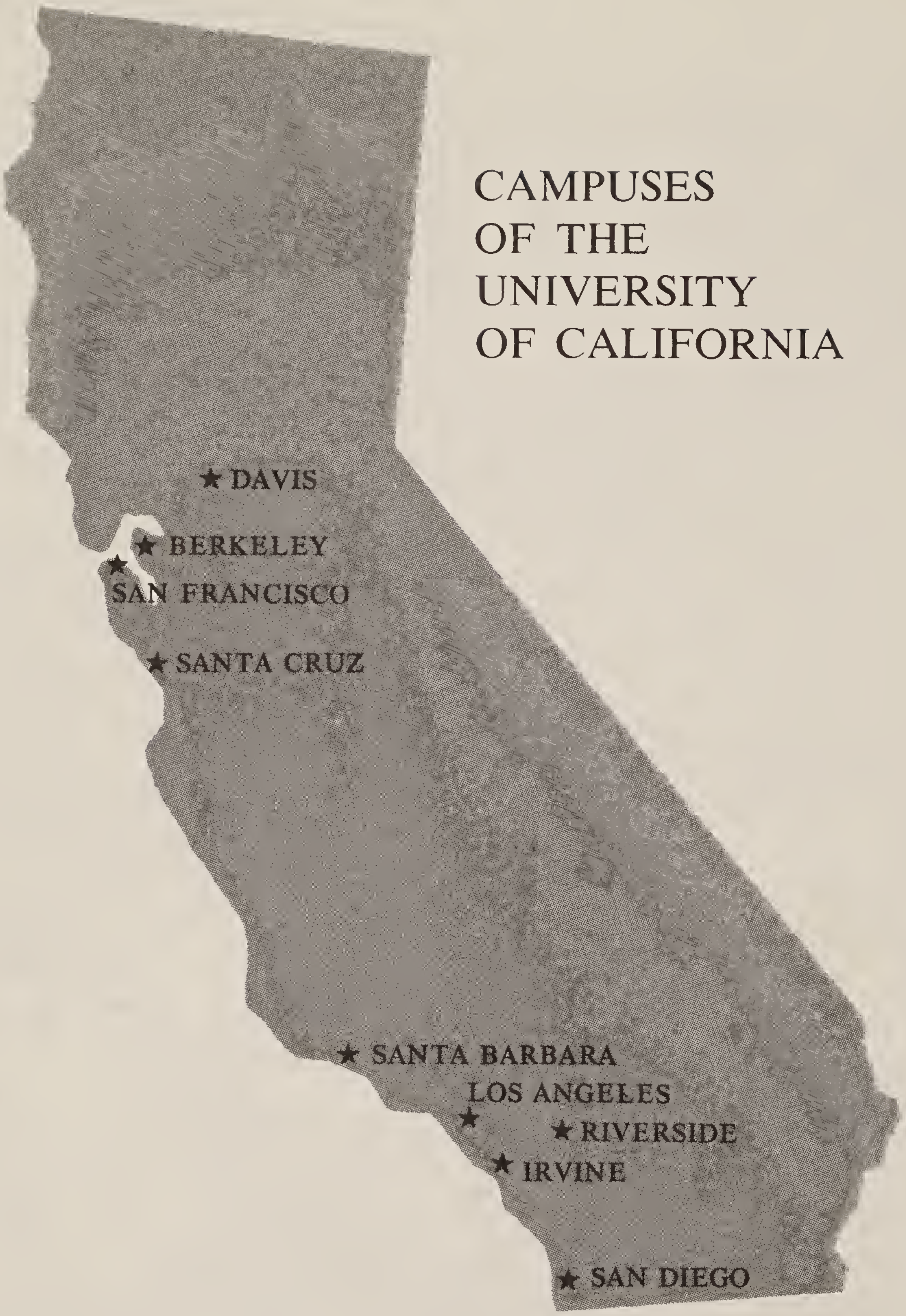
UCSB

General Catalog Issue

Fall, Winter and
Spring Quarters 1971–72

August 1971

UCSB campus and lagoon



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UCSB

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FALL, WINTER AND SPRING QUARTERS

1971-1972

UNIVERSITY OF CALIFORNIA

SANTA BARBARA, CALIFORNIA 93106

August 1971

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Administrative and departmental offices are normally open Monday through Friday from 8 a.m. until noon and from 1 p.m. until 5 p.m., or by appointment.

All announcements herein are subject to revision. Changes in the list of Officers of Administration and Instruction may be made subsequent to publication.

Telephone 961-2311 (area code 805) during regular office hours.

Calendar

	Fall Quarter '71	Winter Quarter '72	Spring Quarter '72
Opening dates for filing applications for admission to undergraduate status to be filed with the Admissions Office.	Nov. 1, 1970, Monday	July 1, 1971, Thursday	Oct. 1, 1971, Friday
Opening dates to file intercampus visitor program.	Nov. 1, 1970, Monday	July 1, 1971, Thursday	Oct. 1, 1971, Friday
Opening dates for intercampus transfer.	Nov. 1, 1970, Monday		
Final date for applications and credentials for admission to graduate status to be filed with the Dean of the Graduate Division.	Aug. 2, Monday	Nov. 1, Monday	Feb. 1, Tuesday
Last day to apply for reinstatement.	Aug. 20, Friday	Nov. 26, Friday	Feb. 18, Friday
Last day to make application for readmission to be filed with the Registrar's Office by students who have been absent two quarters or more, or who withdrew within the last quarter in attendance. Special undergraduates and all students in limited status must apply for readmission every quarter.	Aug. 27, Friday	Dec. 3, Friday	Feb. 28, Monday
Last day to pay fees to hold space in classes reserved through pre-enrollment. Fees must be in the Cashier's Office before 4:00 p.m.	Sept. 24, Friday	Dec. 21, Tuesday	Mar. 20, Monday
Quarter begins.	Sept. 27, Monday	Jan. 3, Monday	Mar. 27, Monday
Registration, Counseling, and Testing.	Sept. 27, Monday thru Oct. 1, Friday	Jan. 3, Monday thru Jan. 4, Tuesday	Mar. 27, Monday thru Mar. 29, Wednesday
Last day to pay fees without penalty. $10 late registration fee after this date.	Oct. 1, Friday	Jan. 4, Tuesday	Mar. 29, Wednesday
Instruction begins.	Oct. 4, Monday	Jan. 5, Wednesday	Mar. 30, Thursday
Filing of registration packets. After packets are filed students must petition to add or drop classes.	Oct. 11, Monday thru Oct. 15, Friday	Jan. 12, Wednesday thru Jan. 18, Tuesday	Apr. 6, Thursday thru Apr. 12, Wednesday
Last day to file applications with the Office of Financial Aid for university scholarships and all financial aid for the 1971–72 academic year.		Jan. 14, Friday	
$10 fee assessed after this date for late filing of packet.	Oct. 15, Friday	Jan. 18, Tuesday	Apr. 12, Wednesday
Last day for late registration without approval of Registrar.	Oct. 15, Friday	Jan. 18, Tuesday	Apr. 12, Wednesday
Last day to file completed applications for Teaching Credentials this quarter. Obtain forms in Education-Advising Office, Phelps Hall, Room 1180.	Oct. 15, Friday	Jan. 21, Friday	Apr. 19, Wednesday
Last day to file registration packets without lapse in status as a student in the University. Reinstatement fee is $10 plus $10 late filing fee after this date.	Oct. 22, Friday	Jan. 26, Wednesday	Apr. 19, Wednesday
Last day for adding classes.	Oct. 22, Friday	Jan. 25, Tuesday	Apr. 19, Wednesday
Last day to file Leave of Absence with the Graduate Division.	Oct. 29, Friday	Feb. 4, Friday	Apr. 21, Friday
Applications for University Scholarships and all financial aid for the 1971–72 academic year available from the Office of Financial Aid.	Nov. 1, Monday		
End of first half of Quarter.	Nov. 6, Saturday	Feb. 12, Saturday	May 6, Saturday
Last day to drop courses (above 12 units) without permission of the dean of the school or college. After this date withdrawals permitted only for cause and under exceptional circumstances.	Nov. 12, Friday	Feb. 15, Tuesday	May 10, Wednesday

	Fall Quarter '71	Winter Quarter '72	Spring Quarter '72
Last day to file with committees in charge of Master's theses and doctoral dissertations for degrees.	Nov. 13, Saturday	Feb. 12, Saturday	May 16, Tuesday
Last day for petitions to change Passed/Not Passed grade option to letter grade system.	Nov. 19, Friday	Feb. 22, Tuesday	May 17, Wednesday
Dead Week. No student or faculty sponsored evening student group meeting or social events are to be scheduled for this week.	Dec. 6, Monday thru Dec. 11, Saturday	Mar. 6, Monday thru Mar. 11, Saturday	May 31, Wednesday thru June 6, Tuesday
Instruction ends.	Dec. 9, Thursday	Mar. 9, Thursday	June 3, Saturday
Reading Period	Dec. 10, Friday thru Dec. 11, Saturday	Mar. 10, Friday thru Mar. 11, Saturday	June 5, Monday thru June 6, Tuesday
Final Examinations.	Dec. 13, Monday thru Dec. 18, Saturday	Mar. 13, Monday thru Mar. 18, Saturday	June 7, Wednesday thru June 13, Tuesday
Last day to file completed theses and doctoral dissertations with Graduate Division.	Dec. 17, Friday	Mar. 17, Friday	June 12, Monday
Quarter ends.	Dec. 18, Saturday	Mar. 18, Saturday	June 13, Tuesday
Commencement.			June 11, Sunday

Academic and Administrative Holidays

Labor Day	Monday	September 6, 1971
Thanksgiving Vacation (Classes dismissed at 3:00 p.m., Wednesday, Nov. 24)	Thursday and Friday	November 25–26, 1971
Christmas Holiday	Friday	December 24, 1971
New Years Holiday	Friday and Saturday	December 31, 1971 January 1, 1972
Washington's Birthday	Monday	February 21, 1972
Spring Holiday	Friday	March 24, 1972
Memorial Day	Monday	May 29, 1972
Independence Day	Tuesday	July 4, 1972

SUMMER 1972

Pre-enrollment for Summer Session.	March 1, 1972
Last day for applications to the Summer program for High School Juniors.	April 28, 1972
Summer Session High School Junior program begins.	June 17, 1972
Instruction begins for Summer Session.	June 19, 1972
Instruction ends for Summer Session.	July 28, 1972

The University of California

THE UNIVERSITY

Established March 23, 1868, as a Land-Grant institution and State University, the University of California in 1968 observed its 100th year as a State University. It comprises nine campuses, six major research stations, nine agricultural field stations, fifty-three agricultural extension offices, and a number of other components located throughout the State. The University itself is part of a coordinated system for public higher education that embraces the State's more than ninety-three junior colleges and nineteen state colleges.

The University performs many services in addition to its regular program of instruction. It is the primary state-supported academic agency for research. It provides many public services including medical and dental clinics, informational services for agriculture, a program of adult education, summer session, public lectures, educational motion pictures, and a broad program of business and professional conferences and institutes.

THE ADMINISTRATION

The organization and government of the University of California is entrusted, under the State Constitution, to a corporate body titled The Regents of the University of California. The Board of Regents is composed of twenty-four members, sixteen appointed by the Governor of the State for sixteen-year terms and eight who are members because of offices they hold. These *ex officio* members are the Governor, the Lieutenant-Governor, the Speaker of the Assembly, the President of the State Board of Agriculture, the President of the Mechanics' Institute, the President of the Alumni Association, the State Superintendent of Public Instruction, and the President of the University. The Regents have "full powers of organization and government, subject only to such Legislative control as may be necessary to insure compliance with the terms of the endowments of the University and the security of its funds."

The President of the University is the executive head of the University in all its departments and on all its campuses. He is appointed by The Regents and is directly responsible to them. The President and his staff, with headquarters in University Hall at Berkeley, direct the development of major University-wide policy.

The Chancellor is the chief administrative officer on each campus and administers the organization and operation of the campus.

To participate in the administration of academic matters, The Regents have established an Academic Senate, consisting of the faculty and certain of the administrative officers. The Senate, subject to the approval of The Regents, determines conditions for admission of students, and for granting certificates and degrees. It authorizes and supervises all courses of instruction in the academic and professional schools and colleges and exercises general supervision of the discipline of students.

Graduate Divisions, each administered by a Graduate Dean responsible to the Chancellor, are established on the Berkeley, Davis, Irvine, Los Angeles, Riverside, San Diego, San Francisco, Santa Cruz, and Santa Barbara campuses. These Graduate Divisions have curricula leading to the degrees of Master of Arts, Master of Education, Master of Fine Arts, Master of Science, Doctor of Philosophy, and such other graduate degrees as from time to time may be approved.

Tom F. Walters

Music Bowl

The Santa Barbara Campus

ITS DEVELOPMENT

The University of California, Santa Barbara, during 1969 celebrated its twenty-fifth year as a campus of the University. It has undergone extensive growth from an undergraduate liberal arts college to a general University campus which now serves the needs of more than 13,500 students, and carries on research and professional training programs in forty academic fields.

The campus had its beginnings when a small collegiate institution, Santa Barbara State College, was absorbed into the University system in 1944. Itself a venerable institution, the state college, under several names, had been engaged in the training of teachers for more than half a century.

This seventh campus of the University was known for fourteen years as the Santa Barbara College of the University of California. During these years, the necessary academic basis for a general campus of the University was laid. Initially, the great task was the education of a student body which mounted swiftly under the pressure of heavy post-war enrollments. In 1953, the first Master of Arts programs were begun and the move to the present campus was undertaken. In 1958, the Regents changed the name and status of the University of California, Santa Barbara, to that of a general campus of the University. The liberal arts departments were grouped into the College of Letters and Science. Two professional schools—the School of Engineering and the School of Education—were established. Later the School of Engineering was redesignated as a College of Engineering and the School of Education became the Graduate School of Education. The Graduate Division began its existence, and steps were authorized which led to doctoral programs in many departments. The College of Creative Studies, a new undergraduate college, opened in the fall of 1967 as a separate academic unit for specially selected students.

Meanwhile, other aspects of the present campus were brought into being. The Education Abroad Program was begun in 1961, establishing and administering for the University twelve study centers abroad. University-operated student housing began with the move to the new campus in 1954, and now provides for more than 2,600 students on campus, together with a complex of 250 University-operated apartments for married students a mile from campus. The swift development of private housing in Isla Vista, which adjoins the campus to the west, accommodates most of the remainder of the student body. More than 95 percent of Santa Barbara's students are living away from home and within a mile of the campus center, a situation unique in the University system. A new University Center has provided the most recent important element in the creation of a largely residential campus.

The University of California, Santa Barbara, has regional accreditation from the Western Association of Schools and Colleges. Further accreditations are as follows: State Department of Education (Teacher Education), American Chemical Society (Chemistry), and Engineer's Council for Professional Development (Chemical, Electrical and Mechanical Engineering).

THE CAMPUS

UCSB is located on the Pacific seashore, two miles from the town of Goleta and ten miles from the city of Santa Barbara (72,719). The campus is situated on a promontory of eight hundred and fifty acres with a variety of landscaping and two natural lagoons. It faces the beautiful Santa Ynez mountains on one side with the ocean and offshore islands on the other. Many lemon, avocado and walnut orchards are located around the countryside. A fishing pier and county beach park are within walking distance. The campus is easily reached by U. S. Highway 101. Airline, bus, and rail service are available.

Thirty-nine major buildings have been completed and others are under construction. Among the permanent buildings are Administration, Arts, Biological Sciences, Campbell Lecture Hall, Centennial House (a meeting place), Central Laboratory for Radioactive Materials, Chemistry, William H. Ellison Hall, Clarence L. Phelps Hall, Engineering, Library, Marine Laboratory, Music, North Hall, Physical Sciences, Physics, Psychology, Robertson Gymnasium, South Hall, Speech and Drama, University Center, University House (Chancellor's Residence), and the following residence halls: Anacapa (400 men), San Miguel (200 women, 200 men), San Nicolas (400 women), Santa Cruz (400 women), Santa Rosa (200 women, 200 men), and San Rafael (300 women, 300 men). Campus residents take their meals at one of three dining commons: Carrillo, Ortega, and De la Guerra.

Recreational facilities include tennis courts, swimming beach, Olympic size pool, play fields, track, baseball diamond, gymnasuim, 14,000 seat stadium, archery range, and a small golf course. The climate is ideal for year-round outdoor activities.

THE COLLEGE OF LETTERS AND SCIENCE

In July 1961, the College of Letters and Science was established at the University of California, Santa Barbara. All undergraduate students are subject to the general requirements of the University, the general education requirements for the degree of Bachelor of Arts or the general education requirements for the degree of Bachelor of Science, and major departmental requirements (such as English, History or the Biological Sciences).

THE COLLEGE OF CREATIVE STUDIES

In July 1967, the College of Creative Studies was established at the University of California, Santa Barbara. Each of its students is enrolled on the evidence of a substantial talent for independent work in an art or a science; and the sole aim of the College is to instruct these students by all the means available to a faculty of artists and scholars whose special interest is to work closely with talented undergraduates. Work in the College leads to the Bachelor of Arts degree in the College of Creative Studies.

COLLEGE OF ENGINEERING

In January 1961 The Regents of the University of California authorized the establishment of the School of Engineering at the University of California, Santa Barbara. In July 1966 the School was redesignated as a College of Engineering. Students have been enrolled since 1961 and several programs are now being offered.

In 1971–72 offerings in the College include undergraduate programs in Chemical, Electrical, Mechanical and Nuclear Engineering at all levels. Graduate courses leading to the Master's degree and the Doctor of Philosophy degree are offered in Chemical, Electrical and Mechanical Engineering. (See *Graduate Division Announcement* and *Bulletin of the College of Engineering.*)

GRADUATE SCHOOL OF EDUCATION

The Graduate School of Education provides students admitted to the Graduate Division with instruction leading to recommendation for California standard elementary and secondary teaching credentials; specialized preparation in the area of speech and hearing; the supervision credential; and the pupil personnel services credential. Also offered is advanced study leading to a Master of Arts in Education, a Master of Education, presently available only in the area of counseling psychology, and programs leading to the Doctor of Philosophy in Education. Detailed information regarding these programs is available in the *Announcement of the Graduate School of Education, Santa Barbara.*

Credential Programs

Any student who expects eventually to obtain a teaching credential should consult with advisers in the Graduate School of Education, Education-Advising Office, as early as possible in his college career.

GRADUATE DIVISION

The University of California, Santa Barbara, offers advanced programs of study leading to the degrees of Master of Arts in most fields, including education, and the Doctor of Philosophy in anthropology, art history, biology, chemistry, dramatic art, economics, education, chemical, electrical and mechanical engineering, English, French, geology, German, history, mathematics, music, philosophy, physics, political science, psychology, religious studies, sociology, and Spanish. The Master of Fine Arts degree in studio subjects is offered in art, and the Master of Science degree in chemical engineering, electrical engineering and mechanical engineering. The Master of Education degree is presently offered in counseling psychology. Also available is advanced study leading to completion of requirements for various teaching credentials. For further information see the *Graduate Division Announcement* and the *Announcement of the Graduate School of Education.*

CENTER FOR THE STUDY OF DEVELOPING NATIONS

The Center for the Study of Developing Nations was established in January, 1967 to promote and coordinate research on problems relating to the modernization of new nations and older states with underdeveloped economic and political systems. Recognizing the need for research in developing societies and the problems inherent in such research, the Center attempts to focus on problems of change and modernization of an inter-disciplinary and multi-regional character.

In addition to fostering research on developing nations the Center also provides educational opportunities for graduate students and undergraduates and performs functions in the areas of University and public service.

An advisory board consisting of five members of the faculty of the University of California, Santa Barbara, determines the activities of the Center, which are executed by a Director and his staff. In addition the Center is advised by regional committees concerned with the development of specific area studies—Africa, Asia, Hispanic America, Near and Middle East, and Russia. Through these committees the Center encourages the development of curricula and research involving these area programs within the individual disciplines and departments.

The Center also serves as an administrative unit to acquire outside support for programs concerning developing nations and faculty research in these countries.

INSTITUTE FOR APPLIED BEHAVIORAL SCIENCE

The Institute for Applied Behavioral Science, was funded for the first time in November, 1970. Establishment was prompted by the growing conviction on the part of many members of the University community that it would be desirable for some of the behavioral and social scientists on campus to increase the extent and effectiveness of their interaction with real world problems. There is a large and growing number of faculty members who believe that the time has come to extend their fundamental, laboratory based research in the direction of applied technology. Professionals in the community who are dealing with behavior problems on a minute-to-minute basis, and the academically trained researchers in the University who are studying very similar problems, but often on a restricted and somewhat artificial scale, will all benefit by a gradual extension of the University's behavioral research programs into the vast laboratories and problem areas available in the community.

A group of faculty interested in behavior modification have been involved in the initial program of the Institute. Members of the departments of Speech, Psychology, Education and Sociology have been included. A research classroom for autistic children will begin operation in the Fall of 1971, under the joint sponsorship of the Institute and Santa Barbara County Schools.

INSTITUTE OF ENVIRONMENTAL STRESS

The Institute of Environmental Stress, established February 1965, is an interdepartmental organization providing broad coverage of the borderline fields that relate human function to the complex and changing environments to which man and other organisms are continuously exposed. Its primary purpose is to further fundamental research of an interdisciplinary nature towards an understanding of the adaptive potentials of organisms. These goals are being accomplished by undertaking research in the many fields relating to problems of function and organization, by contributing to the training of investigators for independent research and by developing and disseminating information regarding these processes in the interest of the social and scientific communities. It provides facilities and support for undergraduate, graduate and post doctorate research. The areas of research covered involve not only the external environmental stresses but are also concerned with the aging process, exercise, cardio-respiratory diseases, biomedical engineering and neurophysiology. The Institute is also the center for the local unit of Regional Medical Program for Cancer, Heart Disease and Stroke. The disciplines involved in Institute activities come from the biological, medical, behavioral and engineering sciences. The University departments presently represented are anthropology, biological sciences, health services, nutrition, physical education, electrical engineering, mechanical engineering, and psychology.

CHANNEL ISLANDS FIELD STATION

The Channel Islands Field station was established in 1966 to provide living and working facilities for University affiliates and classes desiring to undertake research projects on the northern Channel Islands. The unique, isolated, island environment has proven ideal for student and faculty research in anthropology, biology, geology, and geography.

A research station with accommodations for twenty persons is maintained on Santa Cruz Island. Scheduled transportation to and from the Island is available and arranged through the Field Station office. Guide service and jeep transportation is provided by the permanent staff at the station.

Administrative headquarters are located on the Santa Barbara campus. All inquiries regarding use of the facilities or transportation should be directed to the Director, Channel Islands Field Station, c/o Marine Science Institute. University of California, Santa Barbara, California 93106.

MARINE SCIENCE INSTITUTE

The Marine Science Institute was established in 1969 as an interdepartmental organization to facilitate and promote multidisciplinary and interdisciplinary student and faculty research in marine science. The research interests of students and faculty participating in The Institute are presently largely focused on the local coastal zone: the characteristics, resources, and uses (present and anticipated) of the near-shore marine environment and the effects of use and development of the marine environment upon the coastal zone communities. Strong interest and research activity also exists in marine aquaculture. The traditional academic disciplines involved in Institute activities are numerous and presently include students and faculty in the Departments of Anthropology, Biological Sciences, Economics, Electrical Engineering, Geography, Geology, and Political Science.

The Institute sponsors a regular seminar program and serves as an administrative unit to acquire extra-moral support for projects and programs in the area of marine science.

INSTITUTE OF RELIGIOUS STUDIES

The Institute of Religious Studies is concerned with the objective study of Religion, utilizing the methods of humanistic scholarship and the social sciences. It is interested in the development of interdisciplinary cooperation between the great variety of fields now engaged in study of man's religious thought and behavior and especially the four disciplines of History, Philosophy, Sociology and Psychology, including the phenomenology of the religious experience. The Institute contributes to the operation of an interdisciplinary seminar as a central part of its initial activities and hopes to encourage and support individual and group projects as it develops its program. The purpose of the Institute is not to substitute interdisciplinary concerns for work within the established academic areas of study, but rather to contribute to the enrichment of the separate disciplines by providing a practical context for their dialogue and cooperation. Moreover, in bringing together the varied viewpoints and contributions of those who use scholarly and scientific methods to study religion, the Institute hopes to enlarge the scope and depth of human knowledge in this significant area of human thought.

CENTER FOR BLACK STUDIES

The Center for Black Studies is the research and community service activity by which education on the public campus is made relevant to the particular needs of Black students. As the source of experience and information, the Black Community is the Center's primary research area.

Black education is characterized by practical activity as well as conventional theory. The Center plays an essential part in the development of realistic community programs which, in providing learning situations from actual life for Black students, result in a positive community service.

Politics, education, law enforcement, health, consumer affairs, welfare, and employment are areas of special interest. Center activity is based on the idea that research and study can go hand in hand with actual work to improve the conditions being studied.

While serving as a workshop of life in the Black Community and providing the Black student body with relevant internship, the Center is also a data pipeline to the Black Studies Department and the University in general. Its research develops and communicates source material, that is, interesting, practical and scholastically significant facts and ideas, from the streets and the homes of the community to the classrooms and the laboratories of the campus.

CENTER FOR CHICANO STUDIES

The Center for Chicano Studies was created in January 1970 to (1) undertake interdisciplinary research on the Chicano people; (2) contribute toward the development of curriculum and teaching methods; and (3) plan and organize comprehensive programs of community and University service oriented to the Chicano community, particularly in the Tri-Counties region.

The Center is part of the total Chicano Studies Program at UCSB which also includes a Chicano Studies Department in the College of Letters and Science, a Chicano Studies student services program, and other offices.

An advisory board known as the *Junta Directiva,* consisting of faculty, staff, students, and community members, advises the Center staff which is headed by a Director and Associate Director. The Center is also advised by special committees concerned with the planning and development of certain areas of activities—among them, curriculum development and evaluation, research, graduate affairs, library services, community programs, etc.

Only a year old, the Center has administered a wide variety of activities at UCSB and in the surrounding community, including a research project on Chicano political communication, a summer Institute in Chicano Studies for teachers, counselors, and administrators, a Community Organizations and Leadership Conference, a Chicano manpower project, etc. Activities planned include a Bilingual Instruction and Training Institute funded by outside sources.

Administrative offices of the Center for Chicano Studies are located in the Chicano Studies Building on campus, second floor.

COMMUNITY AND ORGANIZATION RESEARCH INSTITUTE

The Community and Organization Research Institute has three main purposes:

1) To serve as a major resource for basic research in the social sciences at UCSB. To this end, the Institute is interdisciplinary, open to participation by faculty from all the social sciences, psychology, and from departments such as biological science and mathematics.

2) To provide training opportunities for graduate students to participate in on-going research under professionally competent supervision.

3) To make social science techniques and data available to interested parties in Santa Barbara and other cities and communities in Southern California.

The research program is devoted to the study of communities and formal organizations in whatever respects represented by current and future UCSB faculty research interests stemming from the several different disciplines.

QUANTUM INSTITUTE

The Quantum Institute (or more properly the Institute for the Study of the interaction between Electromagnetic Radiation and Matter) was organized in 1969. The Institute is designed to facilitate interdisciplinary research on the broad subject of electromagnetic interactions, frequently with coherent radiation, primarily with applications in biology, chemistry, electrical engineering and physics. The Institute is located in the north wing of the Physics Building.

EDUCATION ABROAD PROGRAM

More detailed information is contained in the section entitled "Courses of Instruction."

SUMMER SESSIONS

Summer sessions offer qualified students lower and upper division courses, advanced special study undergraduate courses, and graduate courses leading toward the Master of Art degree, the Doctor of Philosophy degree, or the standard teaching credentials with specialization in elementary, secondary, or junior college teaching. A college orientation program of regular session courses is offered in summer session to a selected group of high school students who have completed the junior year.

CONFERENCE FACILITIES

Conference facilities of the University of California, Santa Barbara are available for staff and departmental meetings of educational institutions, government agencies, and organizations whose conference requests demonstrate a clear, definable educational need.

Services provided by the Conference Department include initial consultation with staff on planning of program including staffing and scheduling, consultation on publicity and promotion for conference, arrangements for classroom and meeting space and special equipment, arrangements for residence hall facilities and meals, and other services.

For further information regarding conference facilities or arrangements for their use, contact the Conference Coordinator, Department of Residence Halls, University of California, Santa Barbara, California 93106. Telephone 961-3072.

THE UNIVERSITY LIBRARY

The University Library is a collection of 800,000 volumes in an open-stack arrangement serving all undergraduate and graduate programs. Approximately 14,500 periodicals and other serial publications are currently received. The phonograph record collection includes some 11,000 discs in music, foreign languages, speech and drama. Two informational pamphlet files supplement the book collections. The library also receives 100 newspapers, 70 foreign and 30 domestic. A varied collection of microfilms, microcards and microprints makes available for study many materials not in the Library in book form. Significant purchases of private libraries and collections of books and periodicals are expanding the University's research collections.

The Main library consists of two major architectural units connected on the first and second floors and serving as a single structure to house the general book collection. The eight-story unit contains the Serials Department and current periodicals reading room, the Government Publications section and the Department of Special Collections.

The Sciences-Engineering Library is located on the second floor north wing with a collection of 120,000 volumes in the physical sciences, life sciences, military science and the varied branches of engineering, including 3000 periodical titles. The Map Room houses 116,000 sheet maps plus all cartographic publications of the U. S. Geological Survey and the U. S. Coast and Geodetic Survey, and the Library's collection of atlases.

The Oil Spill Information Center provides comprehensive documentation on oil spills on a worldwide basis with more than 15,000 items in a computer-produced catalog. The technical and Government Contract collection of more than 22,000 items, maintained in the Sciences-Engineering Library, contains documents published by U. S. National Aeronautics and Space Administration, California Institute of Technology, Jet Propulsion Laboratory, and others.

The University Library is an authorized depository for U. S. Federal publications issued by the Superintendent of Documents for all California State publications. An increasing number of documents from other states are being acquired. In addition the Library receives all printed United Nations publications and selected foreign and international public documents.

The Reserved Book Service-Reading Room is located in the area immediately inside the west entrance and is open for study on certain holidays and during vacation periods and week of final examinations for longer hours than the general library. A schedule of hours is posted at the entrance.

The Curriculum Collection, located in Phelps Hall, contains a selected collection of children's literature and California state textbooks. It is also one of twenty depositories for curriculum materials issued by all California counties and major school districts.

The Department of Special Collections houses the endowed Wyles Collection of Lincolniana, Civil War and Western expansion materials, consisting of approximately 20,000 books, pamphlets, maps, pictures, and manuscripts. In addition, the department includes the Printers Collection of fine printing and private presses. Also there are collections of rare editions of English and American authors including Henry James, Samuel Becket, D. H. Lawrence, Ezra Pound, Henry Miller, Robert Frost, and others. Recent gifts and special purchases have enlarged the holdings of incunabula and manuscripts.

The Arts Library is located in the Music Building. It will house approximately 79,000 volumes, art prints and other materials pertaining to music and fine arts. The Library's phonograph records collection and listening facilities are located in the Arts Library. An extensive collection of art exhibition catalogs is a special feature of the Arts Library.

The M.E.C.H.A. Library Unit and the Center for Chicano Studies provide research collections for interdisciplinary research on the Chicano people. the M.E.C.H.A. Library Unit is located on the third floor of the south wing, and the collection at the Center for Chicano Studies is located on the second floor of the Chicano Studies Building.

The Black Studies Collection, located on the fourth floor, southeast wing of the Library, houses material on Afro-American history and culture, African and Carribbean literature.

Special library features include graduate seminar rooms, faculty study cubicles, study carrels, group study rooms, a typing room, a newspaper reading room, reading facilities for micro-text and coin-operated copying equipment.

A copy of the student handbook "Your Library" is available to every student. Individual help in use of the card catalog and in locating materials in the Library or in circulation is readily given by staff members.

Library Hours are posted for each quarter.

ARTS AND LECTURES PROGRAM

The Committee on Arts and Lectures pursues a twofold mission: to serve the cultural life of the campus community and to extend and supplement the intellectual life of the classroom. In its quest for quality, the Committee makes an exhaustive search for outstanding productions, lectures, and performing artists to bring to the campus. These events, which are open to the public, include films, art exhibitions, dance events, concerts, plays and lectures. Each year several special events are co-sponsored with the Associated Students.

During the past year the Committee has presented on its concert series the Guarneri String Quartet, the Czech Chamber Orchestra, Vladimir Ashkenazy, and Itzhak Perlman. Past concert seasons have featured such distinguished artists as Isaac Stern, the New York Pro Musica, Alfred Brendel, Evelyn Lear, Marilyn Horne, Dietrich Fischer-Dieskau, the Julliard Quartet, Julian Bream and Andre Watts.

Virtually all of the better known modern dance companies have appeared in Campbell Hall over the past few years—Jose Limon, Erick Hawkins, Charles Weidman, Pearl Lang, Paul Taylor, Don Redlich, Lucas Hoving, Alvin Ailey, Akwin Nikolais, Murray Louis, Yuriko are all impressive figures in the dance world.

Among the touring drama companies presented each year have been the San Francisco Actor's Workshop, the Company Theatre, the American Conservatory Theatre, the Royal Shakespeare Theatre, the Circle-in-the-Square Theatre from New York, the South Coast Repertory Theatre, Theatre on the Balustrade from Prague, and many others.

Each year several professional events are co-sponsored with the Intercampus Cultural Exchange Committee. This special committee has been entrusted by the President with the development of cultural programs on a University-wide basis, and in addition to providing production and performance outlets for student and faculty University artists, it is concerned with bringing new programs of special interest to the entire University community.

In addition to the above kinds of events, the Committee on Arts and Lectures presents a lecture series covering a variety of topics of general interest. Fifty to sixty lecturers are presented annually among which have been Lee A. Dubridge, Charles Eames, Jean Renoir, Mircea Eliade, Robert M. Hutchins, Alan Watts, H. D. F. Kitto, Bishop Crowther, Rollo May, Conor Cruise O'Brien, Jacob Bronowski, Harold Taylor, Baroness Jane Van Lawick-Goodall and Dr. L. S. B. Leakey. An important adjunct of the lectures program are the annual Convocation Lectures which have brought Robert Oppenheimer, Earl Warren, John Kenneth Galbraith, Edwin Reischauer, Stewart Udall and Sargent Shriver; and the Regents' Professorship and Lectureship appointments which bring to the campus for an entire quarter, or a month as is the case in the Lectureship program, distinguished persons in non-academic areas.

A weekly Sunday film series is programmed each quarter. Films are selected with broad ranges of styles and subject matter. Recently the Committee has shown a series of Polish films; a contemporary French series; an Eastern European series; an Italian series; a Japanese series; a silent film series with Chauncey Haines at the organ; and several short series including Jean Renoir and D. W. Griffith films. Several special film programs are shown each quarter. These comprise evenings of short films presented by Universal Education and Visual Arts, "Kinetic Art," Janus Films, "New Cinema;" "Trois Jours du Cinema Francais," a program of six French films brought to our campus through the Cultural Counselor to the French Embassy in the United States; and packages of animated and student films.

Frequent performances are given each year by campus musical, dance and drama students and faculty. The Department of Music presents the University Symphony Orchestra, Opera Workshop performances (recently staged in the new Lotte Lehmann Hall have been "The Magic Flute," "The Coronation of Poppea," "Elixir of Love," "Susannah," "The Brother in Love," and "L'Infedelta Delusa" and "Carmen."); The

Modern Chorale, Men's and Women's Glee Clubs, the Chamber Singers, Musica Antiqua, the Schubertians, and recitals by faculty artists.

Among student productions offered by the Department of Dramatic Art, productions include such varied fare as Camus' "Caligula," the musical, "Stop the World, I Want to Get Off," Gilroy's "Who'll Save the Plowboy?" Feydeau's "Don't Go Walking Around Naked," and "Madame's Late Mother," O'Brian's "At Swim-Two-Birds," Elder's "Ceremonies in Dark Old Men," Ibsen's "Peer Gynt" and Genet's "The Balcony."

Each quarter, the UCSB Dance Division presents the University Dance Group in an evening of student and faculty choreography in which men and women dancers present dances which vary in style and mood from lyrical movement to hilarious mime and comedy.

The Art Galleries, UCSB, offer exhibitions of exceptional quality throughout the year, including an annual faculty show in the fall, an annual student exhibition in the spring and an exhibition of work accomplished by graduate students who have completed their requirements for the M.F.A. Over the past several years, important exhibitions have included Ralph Blakelock, Kem Weber, Herbert Bayer, Mark Tobey, Paul Klee, Max Weber, Josef Albers, William Merritt Chase, and the architectural exhibits of George Washington Smith, Charles Moore, R. M. Schindler, Louis Christian Mullgardt, and Charles F. A. Voysey. The Galleries' permanent collection includes the Sigmond Morgenroth group of Renaissance and Baroque medals and plaquettes; the Sedgwick Collection of 15th to 17th century paintings; the R. M. Schindler Collection of the architect's drawings, sketches, photographs, etc.; the F. May Young Collection of Indian crafts; the Helm and Goodspeed Collections of Pre-Columbian art; and the Ala Story Print Collection as well as other smaller collections. Selections from the Sedgwick Collection, the Morgenroth Collection and the Schindler Collection are on continuous display in their respective galleries and representative groups of the other collections are displayed from time to time. Gallery hours are 10–4 Monday through Saturday and 1–5 Sundays.

COOPERATING INSTITUTIONS

By special arrangements the Santa Barbara Museum of Art and the Santa Barbara Museum of Natural History, both with large private endowments and excellent reputations and facilities, and the University of California, Santa Barbara, work together in the fields represented by these institutions. A number of University classes have been carried on during the past years at the Museum of Natural History, and important programs and classes at the Museum of Art have been arranged for the students of the University. Similarly, the facilities of the Santa Barbara Botanic Garden are available to classes and advanced students in botany. A research laboratory has been established at the Garden specifically for independent investigation by students and faculty.

Hillside House, a privately endowed home and school for cerebral palsied children, serves as an observation laboratory for students in psychology and speech. St. Vincent School, Lawrence Parma School, Santa Barbara and Ventura City Schools, Santa Barbara County Schools, and Devereux Ranch School meet a similar need for those interested in problems of the handicapped.

The major research laboratories of the University are Lick Observatory at Mount Hamilton; the Ernest O. Lawrence Radiation Laboratory at Berkeley and Livermore; the Los Alamos Scientific Laboratory at Los Alamos, New Mexico; the White Mountain Research Station in Mono County; the Richmond Field Station. The California Agricultural Experiment Station conducts research at four campuses and at a number of field stations located throughout the State.

UNIVERSITY EXTENSION

Extension serves as an educational link between the resources of the University and both individuals and organizations throughout the state of California. Extension programs are designed:

1. To create educational opportunities for adults in the professional, administrative, and managerial fields so that they may continue their occupational growth and development and keep abreast of the latest research in their respective fields;
2. To present educational programs which will enable adult citizens who can benefit from university-level instruction to continue their intellectual and cultural interests;
3. To contribute to the development of an informed and responsible citizenry by offering informational programs on contemporary issues, stimulating interest in local, state, national and international problems; and
4. To provide educational and consultative services to governmental and voluntary agencies in studying and helping to solve problems arising from population growth, sociological changes, urbanization, and technological advances.

A variety of methods are used to implement these aims: classes, discussion groups, seminars, conferences, short courses, lecture series, correspondence courses, films, radio broadcasts, educational television, and vocational counseling and testing.

A summer program of courses and workshops is offered. Veterans may use educational benefits available to them under Federal and State laws to enroll in University of California Extension classes provided the classes are part of the prescribed and recognized objectives approved by the Veterans Administration.

Extension offers a limited number of scholarships.

For information and catalogs, contact University of California Extension on any campus of the University. UC Extension, Santa Barbara—Telephone 961-3231.

FOREIGN LANGUAGE TRAINING

Research and field work overseas may be facilitated by oral proficiency training in any of twenty-eight languages taught at the Defense Language Institute at the Presidio of Monterey. This unique program is available on a limited basis to University graduate students and faculty. For additional information, the campus Language Training Adviser may be consulted. Application forms may be obtained from the Secretary, University of California Language Training Advisory Committee, University of California, Santa Cruz; Santa Cruz, California 95060.

Harold Bergsohn

Dramatic Arts Kiosk

Admission to the University

ADMISSION IN UNDERGRADUATE STATUS

The admission requirements of the University are based on two principles: first, that the best assurance of success in the University is shown by high quality of scholarship in previous work and, second, that the study of certain specified subjects will give the student both good preparation for the work of the University and reasonable freedom in choosing his field of specialization.

Application for Admission

Applications should be filed with the Office of Admissions, Room 1210, Administration Building, University of California, Santa Barbara, California 93106. An application form will be supplied by the Office of Admissions upon request. The application can be filed commencing with the following dates:

July 1, 1971	Winter quarter 1972
October 1, 1971	Spring quarter 1972
November 1, 1971	Fall quarter 1972

All campuses observe the opening dates listed above for the acceptance of undergraduate applications. The deadline for filing an application for admission, however, will vary from campus to campus. Each campus has enrollment quotas that limit the number of new freshman and new advanced standing students that may be admitted. Once these quotas have been filled, additional applications cannot be accepted and will be forwarded to another University campus where enrollments are still open. (This may apply to applicants for intercampus transfer.)

Admission requirements are uniform on all campuses of the University. Admission to the University entitles the student to attend the campus of his choice if the required facilities are available there. Since applications will be processed and acted upon in only one Office of Admissions, applications directed to more than one campus should not be filed.

If, after a student has filed his application, he decides to register on a different campus, he should write to the Director of Admissions, 570 University Hall, University of California, Berkeley, California 94720, indicating the campus where he filed his application, the campus where he now wishes to register, and the reason for his change. His records will be transferred to the campus he wishes to attend provided facilities are available there. Such request must be received prior to the close of the filing date for that quarter.

Application Fee

Each applicant for admission is required to pay a non-refundable fee of $20 when an application is filed. Remittance by bank draft or money order payable to The Regents of the University of California should be attached to the application.

Transcripts of Record

Each applicant is responsible for requesting the graduating high school and each college attended to send official transcripts of record directly to the Office of Admissions. Transcripts from the last college attended should include a statement of good standing or honorable dismissal. A preliminary transcript should show work in progress.

English Language Requirement—For Foreign Applicants

In the University of California, English is the language of instruction and communication. Unlike many overseas colleges and universities, the University of California counts toward your record your daily classwork, written papers you submit, and frequent short examinations; your success will not depend solely on a few major examinations. To ensure the adequacy of your ability to understand English, a test of your knowledge is required and is given immediately preceding each quarter. If you make a high grade in the examination, you may begin classes with no restrictions on your academic program, but if your grade indicates the need for further work in certain aspects of English, your program for several quarters may include special courses in English for foreign students. If your grade in the required English examination shows that you are deficient in the English language, you may not be permitted to pursue your work in the University until you have achieved the required proficiency.

Foreign students whose schooling has not been in English are urged to take the Test of English as a Foreign Language (TOEFL) in their home countries. Arrangements for the test may be made by writing to TOEFL, Educational Testing Service, P. O. Box 592, Princeton, New Jersey, U.S.A. 08540. Results of the test should be forwarded to the Office of Admissions on the campus where the student plans to enroll.

If you are not adequately prepared in English and desire to be admitted to the University for a fall quarter, you will be helped by attending one of the intensive English courses held on the Berkeley, Los Angeles, and Santa Barbara campuses during the six weeks before the fall quarter begins. For information, write to the Department of Speech on the Berkeley campus, to the Office of Admissions on the Los Angeles campus, or to the Foreign Student Adviser on the Santa Barbara campus.

Notification of Eligibility

So that students may be informed as early as possible about eligibility, they are urged to apply early in the application period and request promptly to have transcripts of record sent to the Office of Admissions.

The time between receipt of an application by the Office of Admissions and notification to the applicant about his eligibility will vary. Students applying as first-quarter freshmen should ask the high school to submit preliminary transcripts showing the complete record through the next-to-last semester before graduation and listing courses in progress during the final semester.

Those who apply early may receive notification somewhat more promptly. Since the receipt of preliminary transcripts may shorten this interval, applicants should arrange for the submission of preliminary transcripts showing work in progress.

Dates for Notification of Admission, 1971–72: Fall Quarter, May 15, 1971; Winter Quarter, December 15, 1971; Spring Quarter, March 15, 1972.

Failure to Register

An applicant who is not eligible for admission or one who has been admitted but does not register in the quarter for which he applied, and who thereafter desires to attend the University, must submit a new application for admission with a $20 fee. The new application will be acted upon in the light of current availability of facilities and current admission requirements.

Intercampus Transfer

An undergraduate student who is registered on any campus of the University, or who was previously registered in a regular session of the University and has not since been registered in another institution may apply for transfer to another campus of the University by filing the proper forms *on the campus where he was last registered.* The intercampus transfer application forms and application for transcript of record forms may be obtained from the Office of the Registrar at the campus where currently enrolled or last attended in a regular session, and must be filed with that office within the filing periods shown above. A $20 application fee for intercampus transfers is required.

Preparation for University Curricula

In addition to the high school subjects required for admission to the University, certain preparatory subjects are recommended for many University curricula to give the student an adequate background for his chosen field of study. Lack of recommended high school course may delay graduation from the University. Details of these recommendations will be found in the bulletin, *Prerequisites and Recommended Subjects,* which is ordinarily in the hands of high school and junior college counselors and which may be obtained from the Office of Admissions or the University Dean of Educational Relations, 570 University Hall, University of California, Berkeley, California 94720.

All students should pursue a full program of academic subjects during their senior year in high school.

Applicants not eligible for admission to the University are usually advised to attend one of the California junior colleges and take courses applicable toward the requirements of the college or school of the University in which they wish to enroll.

ADMISSION TO FRESHMAN STANDING

An applicant for admission to freshman standing is one who has not registered in regular session in any college-level institution since graduation from high school.

If the applicant does not meet at the time of high school graduation the requirements given below for admission to freshman standing, he must qualify for admission to advanced standing (see page 26). An exception to this regulation will be made only if the student's deficiency was the result of his having omitted one or more required high school subjects. Such a student can sometimes remove the deficiency during the summer; he should consult in advance the Office of Admissions.

In order to meet these subject requirements, the courses offered in satisfaction thereof must be included on a list submitted to the Director of Admissions of the University by the high school principal if the school is located in California. This list must be certified by the principal to the effect that the courses included thereon meet the requirements for admission to the University, and further, this certified list must have been approved by the Director of Admissions of the University. If the high school is not located in California, courses will be considered acceptable if the school is accredited.

If the applicant has registered in a junior college, a four-year college, a university, extension classes of college level, or any comparable institution since graduating from high school, he is subject to regulations governing admissions in advanced standing.

Requirements for Admission to Freshman Standing

Applicants for admission to freshman standing must meet the requirements listed below. These requirements apply to California residents; for special requirements for out-of-state applicants, see page 27.

Graduation from High School

An applicant who has been graduated from a high school in California will be admitted to the University upon the completion of prescribed courses with the required scholarship average.

When a resident of California has been graduated from a high school outside California, the acceptability of the record is determined by the Office of Admissions.

Subject Requirements

a. History, 1 unit.

This must consist of 1 unit of United States history, or ½ unit of United States history and ½ unit of civics or American government.

b. English, 3 units.

These must consist of six semesters of English composition, literature, and oral expression.

c. Mathematics, 2 units.

These must consist of two units of subjects such as elementary algebra, geometry, intermediate and advanced algebra, trigonometry, calculus, elementary functions, matrix algebra, probability, statistics, or courses combining these topics. Arithmetic and such nonacademic subjects as shop mathematics and business mathematics are excluded.

d. Laboratory Science, 1 unit.

A year course in one laboratory science taken in the tenth, eleventh, or twelfth grades, 1 unit.

e. Foreign Language, 2 units.

These must be in one language. Any foreign language with a written literature is acceptable.

f. Advanced Course, 1 (or 2) units.

This must be chosen from one of the following:

Mathematics, a total of 1 unit composed of second-year algebra, solid geometry, or trigonometry.

Foreign language, either 1 additional unit in the same foreign language offered under *e* or 2 units of another foreign language.

A year course in any laboratory science completed subsequent to the science offered under (d) 1 unit.

Electives

Additional elective units to complete the minimum of 15 standard entrance units are also required.

Scholarship Requirements

At least a B average is required in courses taken after the ninth year used to meet the subject requirements. Grades received in elective courses or in courses taken in the ninth year or earlier are not used in computing this average. Subject requirements are satisfied by courses in which a grade of C or higher has been assigned. Grades are considered on a semester basis except from schools that give only year grades. Grades, including those earned in accelerated and advanced courses, are accepted as they appear on the transcript.

In determining the B average, a grade of A in one course will be used to balance a C in another, but an A may not be used to compensate for D, E, or F grades.

Repetition of Courses

Courses taken in the ninth year or earlier in which a grade of D or lower is received may be repeated to establish subject credit.

Courses taken after the ninth year in which a grade of D or F is received may be repeated to establish subject credit and to improve scholarship. Courses may be repeated in an amount not to exceed a total of 1 unit of the *a* to *f* pattern. Grades earned in such repetitions will not be counted higher than a C in determining scholarship average.

Examination Requirement

As a requirement for admission, all freshman applicants (and advanced standing applicants who have earned less than twelve units of college credit subsequent to high school graduation) must submit scores from the following examinations of the College Entrance Examination Board:

1. The Scholastic Aptitude Test
2. Three Achievement Tests, which must include:
   a. English composition
   b. social studies *or* foreign language
   c. mathematics *or* science

Applicants whose scholarship average in the required high school subjects is 3.00 to 3.09 inclusive must achieve a minimum total score of 2500 on the examinations. The test results of all applicants will be used for the purpose of counseling, guidance, placement, and, when possible, in satisfaction of the Subject A requirement.

College Level Examination Program

The Executive Committee of the College of Letters and Science has approved application of units presented at time of admission for the College Level Examination Program toward General Education requirements as follows:

CLEP Credit		*General Education Requirements*
English Composition	10 units	English 1AB
Mathematics	10 units	1 course in Area 5c and 1 course in Area 6
Social Science—History	10 units	Area 4a, 4b or 4c—3 courses
Natural Science	10 units	2 courses toward Area 5a or 5b or 5c or 6 (student must take one laboratory course)
Humanities	10 units	Area 3c—2 courses
Other specific subject examinations		credit for introductory course in subject area as appropriate

Admission by Examination Alone

An applicant who is ineligible for admission to freshman standing and who has not attempted college work subsequent to high school (except during the summer session immediately following high school graduation) may qualify for admission by examination alone.

To qualify, the applicant who is ineligible for admission must take the examinations required of eligible applicants, but must achieve higher scores. The required minimum total score on the Scholastic Aptitude Test is 1100. On the three Achievement Tests the required minimum total score is 1650 with no score less than 500 on any one test.

For admission of out-of-state applicants by examination, see page 28.

Arrangements to take the tests should be made with the Educational Testing Service, P. O. Box 1025, Berkeley, California 94701, or P. O. Box 592, Princeton, New Jersey 08540. The fees are to be paid to the Educational Testing Service. Scores will be regarded as official only if they are received by the Office of Admissions directly from the Educational Testing Service.

Test Dates	*Penalty Dates*	*Closing Dates*
October 9, 1971 (SAT only in California only)	September 8, 1971	September 22, 1971
November 6, 1971 (SAT only)	October 6, 1971	October 20, 1971
December 4, 1971	November 3, 1971	November 17, 1971
January 8, 1972	December 8, 1971	December 20, 1971
March 4, 1972	February 2, 1972	February 16, 1972
April 15, 1972 (SAT only)	March 15, 1972	March 29, 1972
May 6, 1972 (Achievement only)	April 5, 1972	April 19, 1972
July 8, 1972	June 7, 1972	June 21, 1972

Applicants should arrange to take the tests as early as possible. *The scores of an applicant who takes the tests after January may be reported too late for consideration for admission in the fall; similarly, the scores of an applicant who takes the tests in January will be reported too late for consideration for admission in the winter and spring quarters.*

ADMISSION TO ADVANCED STANDING

An applicant who has registered in a junior college, a four-year college, a university, extension classes of college level, or any comparable institution since graduation from high school is subject to regulations governing admission to advanced standing. The applicant may not disregard his college record and apply for admission to freshman standing. However, an advanced standing applicant who has earned less than twelve units of college credits subsequent to high school graduation must satisfy the examination requirement for freshman applicants.

Requirements for Admission to Advanced Standing

Applicants for admission to advanced standing must meet the requirements listed below. These requirements apply to California residents; for special requirements for out-of-state applicants, see page 28.

The requirements for admission to advanced standing vary in accordance with the high school record of the applicant. All applicants, however, must present from the last accredited college or university attended (a) a statement of good standing, and (b) an academic record with a grade-point average* of C (2.0) or better. If the record established in any one accredited institution is below a C (2.0) average, an additional unit and scholarship requirement may be imposed on subsequent credit completed to offset the deficit incurred. In addition, the applicant must meet one of the following conditions:

1. An applicant who was eligible for admission to the University in freshman standing (see page 21) may be admitted at any time he has established an overall grade-point average of C or better.

2. An applicant who was ineligible for admission to the University in freshman standing, but whose only deficiency arose from not having studied one or more of the required high school subjects, may be admitted when the following conditions are met:

   a. He has established an overall grade-point average of C or better, and

   b. He has satisfied, by appropriate courses, the subject requirements for admission to freshman standing (see page 23).

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* The grade-point average is determined by dividing the total number of acceptable units attempted into the number of grade points earned on those units. Courses completed with a grade lower than C may be repeated, but the units and grade points count each time the course is taken. Scholarship standard is expressed by a system of grade points and grade-point averages in courses acceptable for advanced standing credit in the University of California. Grade points are assigned as follows: for each unit of A, 4 points; B, 3 points; C, 2 points; D, 1 point; E and F, no points.

Exception: deficiencies in subject requirements will be waived in an amount not exceeding 2 high school units if the applicant has established a minimum of 84 acceptable quarter units or 56 acceptable semester units passed with a grade-point average of 2.4 or better. Subject deficiencies in excess of 2 units must be satisfied.

3. An applicant who was ineligible for admission to the University in freshman standing because of low scholarship or a combination of low scholarship and incomplete subject preparation (omission, or by grades of D or lower) may be admitted when the following conditions are met:

a. He has established a minimum of 84 acceptable quarter units or 56 acceptable semester units passed with a grade-point average of 2.4 or better, and

b. He has satisfied, by appropriate courses, subject requirements for admission to freshman standing (see page 23) except that subject deficiencies will be waived in an amount not exceeding 2 high school units.

Credit for Work Taken in Other Colleges

The University grants unit credit for courses appropriate to the curriculum in the University that have been completed in colleges and universities accredited by regional accrediting associations.

As an integral part of the system of public education of California, the University accepts, at full unit value, approved transfer courses completed with satisfactory grades in the public junior colleges of the State. Frequently, students who intend to complete their advanced studies at the University will find it to their advantage to complete the first two years of their college course in one of the many excellent California public junior colleges. After a student has earned 70 semester units acceptable toward a degree no further unit credit will be granted for courses completed at a junior college.

Extension courses taken at an institution other than the University may not be acceptable. The decision regarding their acceptability rests with the Office of Admissions.

Deficiencies

In the case of a student who is technically ineligible for admission to the University, the Admissions Officer has authority and responsibility to consider other evidence of ability to pursue University work.

REQUIREMENTS FOR OUT-OF-STATE APPLICANTS

It has been necessary to place some limitation on enrollment of applicants who are not residents of California, and, therefore, only those of exceptional promise will be eligible for admission. The regulations below are designed to admit out-of-state applicants whose standing, as measured by scholastic records, is in the upper half of those who would be eligible under the rules for California residents.

Requirements for Freshman Standing

Graduation from High School

For schools outside California, the University determines the acceptability of the high school record.

Subject Requirements

The same subject pattern as for California residents is required (see page 23).

Scholarship Requirements

The scholarship requirements for in-state applicants (see page 24) apply to out-of-state applicants except that the applicant must have maintained a grade-point average of 3.4 or higher on the required high school subjects.

Admission by Examination

A nonresident applicant must take the same College Entrance Examination Board tests as those required of a resident applicant. The test scores submitted will be used for the purposes of counseling, guidance, placement, and, when possible, in satisfaction of the Subject A requirement. The requirements for in-state applicants (see page 23) apply to out-of-state applicants except that the total score on the Scholastic Aptitude Test must be at least 1100 and the scores on the three Achievement Tests must total at least 1725. The score on any one Achievement Test must not be less than 500.

Requirements for Advanced Standing

In addition to the regular admission requirements (see page 26), out-of-state applicants for admission to advanced standing must meet the following regulations.

Required Subjects and Scholarship

The applicant must have maintained a grade-point average of 2.8 or higher in college subjects attempted and acceptable for transfer credit.

The applicant is expected to have fulfilled the pattern of required high school subjects, if not before high school graduation then by having included in his college program the courses needed to remove any subject shortages. However, deficiencies in subject requirements will be waived in an amount not exceeding 2 high school units if the applicant presents a minimum of 84 acceptable quarter units passed or 56 acceptable semester units passed with a grade-point average of 2.8 or higher. Subject deficiencies in excess of 2 units must be satisfied.

If the applicant did not have at the time of high school graduation an average of 3.4 or higher in courses satisfying the required subject pattern, he must present a minimum of 84 acceptable quarter units passed or 56 acceptable semester units passed with a grade-point average of 2.8 or higher.

ADMISSION TO SPECIAL STATUS

Special students are students of mature years who have not had the opportunity to complete a satisfactory high school program or who have not completed a substantial amount of college work and who by reason of special attainments may be prepared to undertake certain courses in the University toward a definite and limited objective. No person under twenty-one years of age will be admitted as a special student, nor will an applicant be admitted directly from high school. Only cases of unusual merit will be considered. A personal interview is usually required before final action in any individual case can be taken.

Conditions for admission are assigned by the Admissions Officer and are subject to the approval of the dean of the college or school in which the applicant plans to study. Admission is for a specified time only and a prescribed scholarship average must be maintained.

An applicant for special status must submit transcripts of record from all schools attended beyond the eighth grade. He may also be required to take the examination in Subject A.

The University has no special courses. A special student may be admitted to those regular courses for which, in the judgment of the instructor, he has satisfactory preparation. A special student will seldom be able to undertake the work of the engineering and professional colleges or schools.

An applicant will not be admitted to special status for the purpose of making up requirements for admission to the University as a regular student.

ADMISSION TO LIMITED STATUS

Students in limited status are those with a bachelor's degree who are not candidates for an advanced degree or those without a bachelor's degree who have completed a substantial amount of college work with a satisfactory scholarship average and who by reason of special attainments may be prepared to undertake certain courses in the University toward a definite and limited objective. An applicant for limited status must submit transcripts of record from all schools attended beyond the eighth grade. The applicant may also be required to take examination in Subject A.

Conditions for admission are assigned by the Admissions Officer and are subject to the approval of the dean of the college or school in which the applicant plans to study. Admission is for a definite period, and a prescribed scholarship average must be maintained. Students in limited status are not permitted to enroll in graduate courses (200 series).

An applicant will not be admitted to limited status for the purpose of raising a low scholarship average.

ADMISSION OF APPLICANTS WITH BACHELORS' DEGREES

Ordinarily, an applicant with a bachelor's degree substantially equivalent to the bachelor's degree granted by the University of California should apply for admission to graduate status. An applicant with a superior record may occasionally qualify as a student in limited status or, after a complete change of objective, as an undergraduate seeking a second baccalaureate. In either case, the previous scholarship record must be such as to indicate very strong probability of academic success. Admission is subject to the approval of the Admissions Officer and of the dean of the school or college in which the applicant plans to enroll.

ADMISSION OF APPLICANTS FROM OTHER COUNTRIES

The credentials of an applicant for admission from another country in either undergraduate or graduate standing are evaluated in accordance with the general regulations governing admission. An application, official certificates, and detailed transcripts of record should be submitted to the Office of Admissions several months in advance of the opening of the quarter in which the applicant hopes to gain admittance. Doing so will allow time for exchange of necessary correspondence and, if the applicant is admitted, will help him in obtaining the necessary passport visa.

An applicant from another country whose native language is not English may be admitted only after demonstrating that his command of English is sufficient to permit him to profit by instruction in the University. An applicant's knowledge of English is tested by an examination given by the University. Admission of an applicant who fails to pass this examination will be deferred until he has acquired the necessary proficiency in the use of English.

A student from a country where the language is not English is given college credit in his own language and its literature only for courses satisfactorily completed. Such credit will be allowed only for courses taken in his country at institutions of college level, or for upper division or graduate courses taken in the University of California or in another English-speaking institution of approved standing.

The acquisition of health insurance is a condition of registration at the University of California for all foreign students except those in the United States on permanent immigration visas. Information about health insurance programs available will be sent to foreign students with the application for admission. For some campuses appropriate application forms will be included; on other campuses the application is a part of the registration procedure. For details, see page 43.

Foreign Student Advisers

Advisers are available to assist foreign students in all matters pertaining to their attendance at the University. It is required that every student from another country, upon his arrival at the University, present himself with his passport in the Foreign Student Office, Room 142, Building 434.

ENGINEERING EXAMINATIONS

No engineering examinations are required for admission to either the lower or upper division of the engineering programs at the University of California, Santa Barbara.

ADMISSION TO GRADUATE STATUS

All persons seeking graduate standing must apply to the office of the Dean of the Graduate Division. Each applicant must file two copies of a formal application and two official transcripts of his record from each college and university he has attended. The deadlines for application for admission and readmission are: August 2, 1971, for the fall quarter; November 1, 1971, for the winter quarter; February 1, 1972, for the spring quarter. The application blanks may be obtained from the Graduate Division, University of California, Santa Barbara, California 93106. The applications and reapplications must be accompanied by a check, money order, or bank draft for $20 in payment of the application fee. Payment should be made for the exact amount, and checks, drafts, or money orders should be made payable to The Regents of the University of California.

In order to be admitted to graduate status at the University of California students must hold a bachelor's degree or its equivalent from an institution of acceptable standing. The program of preparation should be substantially equivalent both in the distribution of academic subject matter and in scholarship achievement to the requirements for a comparable degree at the University of California. Applications for admission are evaluated in terms of scholastic qualifications and formal preparation for the graduate field of study.

The Dean of the Graduate Division, or the department in which the applicant wishes to pursue an advanced degree, may deny him admission if his scholastic record or his undergraduate program of study is judged not adequate as a foundation for advanced academic or professional study. This procedure applies to all applicants, whether they come from schools or colleges within the University of California or elsewhere. Students with good undergraduate averages whose undergraduate preparation does not meet the requirements for a baccalaureate degree in the University of California may be required to take certain courses in addition to their degree programs. Individual departments may have special requirements for admission to graduate status.

Students who do not desire to become candidates for higher degrees must meet the same admission requirements as those who are prospective candidates for degrees. They must be admitted to a specific field of study and they must satisfy the Dean that their program of study has a definite scholarly or professional purpose. Such students are not eligible for exemption from the nonresident tuition fee.

Expenses, Housing, Awards, Financial Aid

STUDENT EXPENSES

The question of expenses while attending the University of California, Santa Barbara, is of importance to every student. Certain expenses are common to all students. Other expenditures are optional and vary considerably according to differences in interest.

Although each student must determine his own budget in keeping with his needs and resources, the University can provide the following as a guide in computing combined average expenses for Fall, Winter and Spring quarters.

Room and board (20 meals a week) for three quarters in a University residence hall, double room rate	$1260.00
Additional sum to cover Sunday evening meals which are not provided in the University residence halls	60.00
Residence Hall Association fee, per year	12.00
Registration fees, including the University Registration fee ($300 per year), Educational fee ($300 per year), the Associated Students fee ($35.25 per year), Insurance fee ($26 per year) and the University Center fee ($18 per year)	679.25
Books and supplies per year may average	180.00
Personal expenses, including clothing, laundry and cleaning, recreation, and transportation, average approximately	500.00
Average total for three quarters	$2691.25

Students classified as nonresidents pay an additional $500 per quarter as tuition. Board and room costs for students making alternative housing arrangements will, of course, vary.

FEES

Remittance of fees by mail should be either by money order, cashier's check, or personal check made payable to The Regents of the University of California, and mailed to the Cashier's Office, University of California, Santa Barbara, California 93106. The full legal name and alpha number of the student for whom fees are being paid should be indicated on the check or by separate letter accompanying the payment. Parking fees should be paid separately at the Parking Office.

UNDERGRADUATE	FALL QUARTER	WINTER QUARTER	SPRING QUARTER
Registration Fee	$100.00	$100.00	$100.00
Educational Fee	100.00	100.00	100.00
Associated Student Fee	11.75	11.75	11.75
University Center Fee	6.00	6.00	6.00
*Accident and Health Insurance	26.00	(20.00)	(14.00)
Total California Resident	$243.75	$217.75	$217.75
Non-Resident Tuition	$500.00	$500.00	$500.00
Total Non-Resident	$743.75	$717.75	$717.75

* See following "Student Accident and Health Plan Fee."

GRADUATE			
Registration Fee	$100.00	$100.00	$100.00
Educational Fee	120.00	120.00	120.00
University Center Fee	6.00	6.00	6.00
Graduate Student Assn. Fee	1.00	1.00	1.00
*Accident and Health Insurance	26.00	(20.00)	(14.00)
Total California Resident	$253.00	$227.00	$227.00
Non-Resident Tuition	500.00	500.00	500.00
Total Non-Resident	$753.00	$727.00	$727.00

* See following "Student Accident and Health Plan Fee."

Resident Students with demonstrated financial need may defer payment of the Educational Fee by accepting an obligation to repay the sum deferred after completion of their higher education. The deferred provision refers only to the Educational Fee and not to the other fees assessed by the University. Students interested in this provision should contact the campus Financial Aids Office.

Application Fee. An applicant who wishes to enter the University must fulfill the general requirements for admission. Application blanks may be obtained from the Office of Admissions; University of California, Santa Barbara; Santa Barbara, California 93106. Every applicant for admission is required to pay a fee of $20 when his first application is filed. Remittance by bank draft or money order should be made payable to The Regents of the University of California.

Deposit Fee. Each student to be admitted will be required to return an Acceptance of Admission form, together with a non-refundable fee of $50 which will be credited to the registration fee.

University Registration Fee. The University Registration fee is $100 per quarter for both undergraduate and graduate students. This fee, which must be paid at the time of registration, covers certain expenses of students for athletic and gymnasium facilities and equipment, lockers, laboratory and course fees, counseling and placement services, such consultation, medical advice, and hospital care, or dispensary treatment as can be furnished by the Student Health Service. No part of this fee is remitted to those students who may not desire to make use of all or any of these privileges.

Student Accident and Health Plan Fee: A supplemental accident and health insurance plan is sponsored by Associated Students UCSB. A fee of $26.00 for 12 months coverage is payable at the time registration fees are paid for Fall. The fee is $20.00 *for 9 months coverage* for students entering in the Winter Quarter, $14.00 *for 6 months coverage* for students entering in the Spring Quarter. Participation in the plan is mandatory unless covered by other health insurance. If so, the waiver form provided must be signed and returned with payment of registration fees.

Tuition. Tuition is free to every student who has been a legal resident of the State of California for a period of more than one year immediately preceding the opening day of the quarter during which he proposes to enroll. Every student who has not been a legal resident of the State for said period is classified as a nonresident and is subject to payment of a nonresident tuition fee of $500 per quarter. A student entering the University for the first time should read carefully the rules governing the determination of residence as quoted below so that he may be prepared in the event of nonresident classification to pay the required tuition fee. Every entering student and every student returning to the University after an absence is required to make a Statement as to Residence on the day of registration upon a form that will be provided for that purpose and his status with respect to residence will be determined soon after registration by the Attorney in Residence Matters.

Filing Fee. A fee of $50.00 has been established for the filing of a doctoral dissertation, a master's thesis, and/or the formal final examination for the doctor's or the master's degree. For details and considerations, see page 77 under GRADUATE DIVISION.

Intercampus Transfer Fee. A $20 fee for intercampus transfers is required with ICT applications.

University Center Building Fee. A University Center fee is charged all students registered for 6 units or more. The fee is $6 per quarter and is used to repay construction loans.

Associated Students' Membership Fee. The student membership fee is $11.75 per quarter and is paid at the time of registration.

Deficit Program. A student programmed for fewer than 6 units is not required to pay the Associated Students' fee. Waivers should be requested from the Registrar's Office *prior* to payment of fees. Students who change their programs to less than 6 units may request a refund of their Associated Students' fee of $11.75. This request must be made in the Registrar's Office by the end of the second week of classes. The Associated Students' membership card must be turned in with this request, and at that time the student relinquishes the privileges of an Associated Students member.

Miscellaneous Fees and Refunds. A schedule of miscellaneous fees and other information on this subject, *Student Fees and Deposits*, may be obtained from the Cashier, University of California, Santa Barbara.

No claim for remission of fees will be considered unless presented during the fiscal year in which the fee was paid. Receipts are issued for all payments, and these receipts should be retained. Refunds may not be made until the original receipt is surrendered.

All fees are subject to revision by The Regents of the University of California.

RULES GOVERNING LEGAL RESIDENCE

Nonresident Tuition Fee. Students who have not been legal residents of California for more than one year immediately prior to the opening day of the quarter in which they register are charged, along with other fees, a tuition fee of $500.00 for the quarter. Legal residence is the combination of *physical presence* in California and the *intention* of making it one's permanent home, coupled with the relinquishment of legal residence in any other state. The student who is within the state primarily for educational purposes does not gain the status of legal resident regardless of the length of his stay in California. In general, the unmarried minor (any person under 21 years) derives legal residence from his father; or from his mother if the father is deceased; or, in the case of divorced parents, from the parent awarded legal custody by the court. The married woman derives legal residence from her husband from the date of marriage. (Government Code Section 244 and Education Code Sections 23054, 23055, 23057, 23058 and 23059.)

The attention of the following students is directed to the fact that presence in California for more than one year does not, in itself, entitle them to resident classification: (1) those under 22 whose parents are not California residents; (2) servicemen stationed in California who were not California residents at the time of entry into the military service; (3) alien students who first must qualify for permanent residence status according to the applicable laws of the United States.

Exemption from payment of the nonresident tuition fee is available to the unmarried minor whose natural or adoptive parent is in the active military service of the United States and is stationed in California on the opening day of the quarter for which he registers, or is stationed outside the United States immediately after having been stationed on active duty in California. This waiver is also available to the spouse of a member of the military service of the United States with an active duty station as described above.

New and returning students are required to fill out a Statement of Legal Residence, a form that is issued at the time of registration. Their status is determined by the Attorney in Residence Matters deputy who is located in the Registrar's Office. Inquiries from prospective students regarding residence requirements for tuition purposes can be made by writing to the Attorney in Residence Matters, 590 University Hall, University of California, Berkeley, California 94720. *No other University personnel are authorized to supply information relative to residence classification.*

Those classified incorrectly as residents are subject to reclassification as nonresidents. If incorrect classification results from false or concealed facts, the student is subject to University discipline and is required to pay all back fees he would have been charged as a nonresident. Resident students who become nonresidents must immediately notify the Attorney in Residence Matters or his deputy. Application for a change in classification with respect to a previous quarter is not received.

HOUSING

There is a variety of housing available for students enrolled at the University of California, Santa Barbara: University-owned campus residence halls and married student apartments; privately-owned room and board facilities, apartments, duplexes, sororities and fraternities. The University strongly recommends that all new students, particularly freshmen students, reside in University-owned residence halls. Group life in the residence halls provides leadership experiences, an opportunity for democratic living and contributes to the educational experience of the student. The University will refer students who cannot be accommodated on campus or wish to live off campus to privately-owned housing.

University-Owned On-Campus Housing

Students who desire on-campus housing must first apply for entrance to the University through the Admissions Office. Priority for campus housing is based on date of application for housing and date of admission to UCSB; however, a contract is not offered until the Statement of Intention to Register has been returned to the Admissions Office. There are accommodations for 2,668 single students in residence halls on the campus. San Nicolas and Santa Cruz Halls house women students, Anacapa Hall houses men students, and San Miguel, San Rafael and Santa Rosa Halls are coeducational. Residence halls students eat in De la Guerra, Ortega or Carrillo Dining Commons located near the residence halls. The price for three quarters (fall, winter and spring) for room and board (20 meals per week) is $1,260. The majority of the rooms are for two students. Rooms are furnished with single beds, pillows, linens, chests of drawers, chairs, bookcases and desks. Blankets, bedspreads, towels and study lamps are supplied by the students. The residence halls are closed during the Thanksgiving recess and between quarters. Applications are accepted for the following year beginning November 1 for Fall Quarter, June 1 for Winter Quarter and September 1 for Spring Quarter.

University-Owned Married Student Apartments

There are two University-operated apartment complexes, consisting of 550 apartments, located near the campus for married students. Married graduate students must be full time registered students to be eligible for residence in these apartments, and undergraduate students must be registered for at least 12 units of work to be eligible. Vacancies are filled according to date of application and the following priority:

1. Married Graduate Students
2. Married Undergraduate Students; over 21 years of age.
3. Married Undergraduate Students; under 21 years of age.
4. Single Graduate Students

These apartments are unfurnished except for a stove and refrigerator, and they rent for $100–$150 per month, including utilities. Licenses will be negotiated with tenants after application forms have been received by the Office of Housing Services as vacancies occur. Applications are available from the Office of Housing Services upon request.

Sororities & Fraternities

The eight sororities and eleven fraternities own or lease houses or apartments near the campus and provide lodging and meals for their members. (See Section on Student Activities)

Privately Owned Housing

Listings of privately owned accommodations are available to any student who desires to call in person at the Office of Housing Services. It is recommended that living arrangements be made by the student directly with the owner or manager rather than by mail. There should be a clear understanding by both parties, in writing, as to rental prices, intended length of stay, charges to be made during vacation periods, etc. A contract is a legal agreement and the terms of the contract are binding.

Most apartments are located in Isla Vista, adjacent to the west edge of the campus; in Goleta, two miles from the campus; and in Santa Barbara, ten miles from the campus. Public buses run on a regular schedule from Santa Barbara to the campus, and the fare is thirty-five cents each way.

Prices per person per academic year for room and board facilities range from $1050 to $1400, and apartments range from $575 to $1100 per student per academic year. Some quarterly contracts are offered.

Housing listed with the Office of Housing Services is inspected annually for health and safety, and the owners are required to comply with federal, state and local laws, including those pertaining to building and safety codes. It is also required that before any housing can be posted in the Office of Housing Services, the owner must sign a non-discrimination card. Another requirement is that an owner of listed housing must either include in his contract a submission agreement to mediation by the Mediation Board in landlord/tenant disputes or submit a signed agreement to be on file in the Office of Housing Services.

Locater files and bulletin boards are used by students to communicate and assist one another in finding apartments and compatible roommates or in subletting apartments.

Advice and more information about living accommodations may be obtained by writing to the Office of Housing Services, 1234 Administration Building, UCSB.

PARKING

A parking fee of $36 per year is charged for parking on campus, and all vehicles, including motorcycles ($7.50), must be registered with the Parking Services Office. A fee of $1.00 is charged to register a second car if owner is eligible. (A $5.00 parking fee will be charged students attending the summer sessions only.) Vehicles are to be parked only in lots designated by permits. All undergraduate students living off campus within one mile of the campus boundary are not permitted to purchase parking permits for automobiles or motorcycles. Permit holders may not use a visitor parking zone nor can students and staff purchasing daily permits. Parking regulations and fees are subject to revision.

Complete information as to parking and vehicle operation may be obtained from the Parking Services Office, 1248 Administration Building. Students are urged to be informed relative to these matters.

Traffic violators may be cited to Municipal Court.

FINANCIAL AID and SCHOLARSHIPS

Application Deadlines

The following deadlines for submitting applications are observed:

January 15, for fall, winter, and spring quarters of the following academic year;
October 15, for winter and spring quarters of the current academic year;
December 31, for spring quarter of the current academic year.

Scholarships, awarded only for a full academic year, must be applied for prior to the January 15 deadline.

Applications for scholarships and all other programs of financial aid must be supported by a confidential financial statement.

General Information

Financial assistance in the form of loans, grants, work-study, and scholarships is available on an annual basis to qualified students at the University of California, Santa Barbara. Although parents and students are expected to make the maximum effort to cover college expenses, those students who would be unable to continue their education without supplemental resources will be given assistance according to their need as determined each year by College Scholarship Service criteria from the Parents' Confidential Statement. Funds for this purpose are made available by the Federal Government, the Board of Regents, various private organizations, and many interested individuals. Non-University or outside agency awards of scholarship moneys are considered as student assets in determining total need.

One basic application form, if submitted to the Office of Financial Aid before the January 15 deadline, entitles the qualified student who has established financial need to consideration for scholarships and other types of assistance. Current University of California, Santa Barbara, application forms may be obtained from the Office of Financial Aid, UCSB, after November 1. The necessary Parents' Confidential Statement must be submitted to College Scholarship Service one month prior to the application deadline. These forms may be secured by the entering student from his high school or college counselor or from College Scholarship Service, Box 1501, Berkeley 94701; and by the continuing resident student from the Office of Financial Aid at UCSB. Married or qualified self-supporting students will be required to submit an additional supplemental form, obtainable only from the Office of Financial Aid at UCSB. The mere desire to be independent of parents and reject their support cannot qualify the student for financial aid.

Awards are announced in mid-April and May. They may, and often do, take the form of a "package" made up of a combination of offers from the scholarship, loan, grant, and work-study funds, as the applicant's need requires. Awards may be adjusted at any time upon notice of receipt of non-University or outside agency funds.

UNDERGRADUATE SCHOLARSHIPS are awarded competitively on the basis of achievement, need as determined by College Scholarship Service criteria, and available funds. Except for the Regents awards, all must be applied for each year. Transcripts of records sent directly to the Office of Financial Aid, are required of entering freshmen and transfer students. Included in the scholarship group are:

The Regents Scholarships. These coveted awards are based solely on academic excellence and exceptional promise. Students are eligible upon graduation from high school or completion of the college sophomore year. The term of appointment, subject to annual review, is for four years for students entering from high school, and two years for college sophomores. Awards may be honorary in nature or may be accompanied by a stipend covering the Scholar's need as determined by College Scholarship Service criteria. All Regents Scholars receive at the time of their original appointment an honorarium of $100, regardless of financial need. Applicants without demonstrable need who wish to be considered for the Regents Scholarship with honorarium only should so indicate on the application form and need not file a Parents' Confidential Statement.

President's Scholarships. These one-year awards are made annually to entering and continuing students. They are granted on the basis of scholastic attainment, financial need, character, and promise. The maximum stipend is $500; however, if established need exceeds this amount, the award will be supplemented from loan, grant, work-study or other scholarship funds.

Community College Transfer Scholarships. A limited number of scholarships will be awarded to community college transfer students who have established financial need. The awards are of two types: Immediate and Deferred. The first is available to community college transfers who have completed 56 or more transferable semester credits; the Deferred award is offered to and retained for high school seniors who plan to attend a community college and then transfer to UCSB after completion of 56 or more transferable units. Recipients of the Deferred award must maintain a community college grade average of B or better.

Community College Transfer Scholarships will be awarded for two years, with renewal for the second year subject to maintenance of a superior grade point average. The amount of the annual stipend will be based on financial need up to a maximum of $800 annually. Applicants should indicate on the scholarship form supplied with the application whether they are applying for an Immediate or a Deferred award.

Other Scholarships. Over 350 additional scholarships are awarded annually by the Chancellor to undergraduate students. With few exceptions, they are granted on the basis of need and high academic achievement. For the 1970–71 academic year, these awards, made possible only through the contributions and cooperation of individuals and private organizations, ranged from $100 to $800, and averaged about $350. Generally speaking, established scholarship funds are of two types:

a.) Local gifts and endowments (those available only to the UCSB campus). In 1970–71, this group contributed as follows:

California Congress of Parents and Teachers, Inc.	$ 1,000
John and Ina Therese Campbell Scholarship Fund	51,958
Avery-Clay Memorial Scholarship of Pi Beta Phi Sorority	150
John Randolph Haynes and Dora Haynes Foundation	2,800
William C. Matthews and Florence W. Matthews Fund	5,000
Isabelle Price Memorial Scholarship Fund	5,416
Raytheon Memorial Scholarship Fund Niel F. Beardsley; Harold H. Mackie, Jr.; James C. Russell; Diego S. Terres, Jr.	1,000

George Reger Scholarship Fund (San Marcos Lions Club)	$ 300
Kevin P. Moran Memorial Fund	147
Clarence Phelps Memorial Fund	300
Santa Barbara Scholarship Foundation	5,250
Dover Sharp Memorial Fund	365
UCSB Alumni Association, in cooperation with Associated Students and Residence Hall Association	11,575
Mildred Wright Memorial Scholarship (Soroptimist Club of Santa Barbara)	500

b.) University-wide endowment funds, some of which are rotating and are not necessarily received each year. In 1970–71, UCSB students received scholarship moneys from:

The Sarah M. Armstrong Scholarship Fund
Kenneth & Florence Caldwell Fund
Caroline H. Clow Scholarship Fund
Brython P. Davis Scholarship Fund
John S. Edwards Scholarship Fund
Matilda Newsome Fowler Memorial Fund
Richard D. and Kate Faulkner Scholarship Fund
General Scholarship Fund
Leon R. Goodman Scholarship Fund
Hulda Johnson Scholarship Fund
Edward Frank Kraft Scholarship Fund
Hazel S. Lagersen Fund
Laura Perrot Mahan Scholarship Fund
Eugene and Harriet Meyer Fund
LaVerne Noyes Scholarship Fund
Milton Phillips Scholarship Fund
Mabel Wilson Richards Scholarship Fund
Werner R. Scott Scholarship Fund
San Francisco Polytechnic High School Fund
Alan Pattee Scholarship (State scholarship for children of police or fire personnel who lose their lives in the line of duty)

In addition to the above named scholarship funds, several local agencies and organizations cooperate with the Office of Financial Aid in providing financial assistance to qualifying UCSB students in the form of grants, long-term loans, or scholarships. During the 1970–71 academic year, this group included the Santa Barbara Scholarship Foundation, Santa Barbara Foundation, American Association of University Women, Santa Maria Alumni Association, Santa Barbara Alumni Association of Delta Delta Delta Sorority, and the Alexander Bee Scholarship Loan Fund.

The Office of Financial Aid also maintains an Agency Scholarship department through which private individuals and outside agencies distribute scholarship or loan funds to their selected recipients.

GRADUATE SCHOLARSHIPS in limited number are awarded each year by the Chancellor to graduate students who apply before the January 15 scholarship deadline. Applicants must establish financial need and be recommended by the Graduate Division.

The following graduate fellowships were awarded by Santa Barbara donors to UCSB in 1970–71:

General Research Corporation
Pillsbury Foundation

OTHER TYPES OF FINANCIAL AID are available to qualifying graduate and undergraduate students according to established need and the application deadlines stated above. The several programs include:

UC Grants. These awards are made in varying amounts to graduates and undergraduates who establish substantial need. Funds for the program are derived from the University Registration Fee.

Educational Opportunity Grants (EOG). This federal program provides funds for undergraduate students who have exceptional financial need and show evidence of academic or creative promise. Grants range from $200 to $1,000 a year; are renewable for four years for full-time undergraduates in good standing; and must be awarded in combination with other financial aids.

Work-Study Program. An eligible student may be provided either an on-campus or off-campus job with a participating non-profit agency which would provide up to 15 hours per week employment during the school year and 40 hours per week during vacation periods. Priority must be given to students from low-income families who can make little, if any, contribution toward college expenses.

National Defense Student Loans (NDEA). Enrolled students who are citizens or permanent residents of the United States may receive assistance according to need from these federal funds. The maximum loan per academic year is $1,000. The loans are interest free as long as the borrower remains enrolled as a student, and carry simple interest at 3 percent during the repayment period which may be extended over ten years' time.

Federally Insured Student Loans. This program enables students to borrow from participating lending institutions to help pay educational costs while attending school. It was established to meet the needs of middle- and upper-income families who do not qualify for the other programs. It provides long-term loans and does not require the filing of a Parents' Confidential Statement. Borrowers must be citizens or permanent residents of the United States and be enrolled students in good standing or have been accepted for enrollment.

Educational Fee Deferment Loan. Beginning with the 1970–71 academic year the Regents of the University of California established the Educational Fee. Students who are legal residents of the State of California and have demonstrated financial need may defer payment of this fee by accepting an obligation to repay after completion of their higher education under terms similar to those of the National Defense Student Loan; i.e., repayment at 3% interest beginning nine months after termination of enrollment.

Emergency and **Short-term Loans.** Students in good standing who are facing financial emergencies may inquire at the Office of Financial Aid about short-term loans. Loans are available from the following funds:

Marvin M. Appel Scholarship Fund
Avery-Clay Memorial Loan Fund
California Federation of Women's Clubs Loan Fund
Mary L. Cheadle Emergency Loan Fund for Foreign Students
Lawrence E. Chenoweth Memorial Loan Fund
John Lalia Conway and Floralyn Cadwell Conway Scholarship Fund
Ericson-Werner Memorial Loan Fund
David Gray, Jr. Loan Fund
Ed Hass Loan Fund
Elias Hick and Edward Barnes Jones Foreign Students Loan Fund
International Friendship Fund

Willis Edwin Leonard Memorial Loan Fund
Los Rancheros Pobres Loan Fund
Steve McNally Memorial Loan Fund
Ednah Rich Morse Loan Fund
Upton S. Palmer Loan Fund
Dr. Paul Perigord Loan Fund
Pioneer Memorial Student Loan Fund
Isabelle Price Memorial Loan Fund
Regents Loan Fund
Santa Barbara County Federation of Women's Clubs Foreign Students Loan Fund
Santa Barbara Senior Loan Fund
Warren E. Schutt Memorial Loan Fund
Laura E. Settle California Retired Teachers Association Loan Fund
Yves and Manon Surcouf Memorial Loan Fund
Jody Thoele Memorial Fund
John H. Tokuyama Memorial Loan Fund
Anna Vishanoff Memorial Loan Fund

Associated Student Loans. Enrolled undergraduate students may borrow small sums on a short-term basis from the Associated Students. Application should be made at the Associated Students Business Office located in the University Center.

SPEECH AND HEARING FELLOWSHIPS

A limited number of federally sponsored fellowships are available to advanced students majoring in speech and hearing. One fellowship is available for work with emotionally disturbed children. Students interested in and qualifying for such assistance should contact the departmental office of this major field of study.

PRIZES AND AWARDS

Through the generosity of friends of the University, prizes are available to students in accordance with conditions laid down by the donors. Information about competitions will be published from time to time in the campus newspaper.

Academic Excellence in Psychology
Alliance Francaise Medal
Alumni Association Awards
Art Affiliates Fellowship (1969–70)
Associated Students President's Award
Stuart L. Bernath Undergraduate Prize (History)
Chi Omega Social Sciences Award
Edwin Corle Memorial Undergraduate and Graduate Book Collection
    Contest Awards
Dictionary Awards, 1971
Dutch Books
William H. Ellison Graduate Prize (History)
Norman Gabel-Fay Cooper-Cole Scholarship (Anthropology)
Genevieve Haight Memorial Award
Honor Copy of *La Cumbre*
Honor Keys
Junior Prize in Speech and Hearing
Willard L. McRary Memorial Chemistry Prize
Mortar Board Award

Music Awards
Outstanding Lower Division Man
Outstanding Lower Division Woman
Outstanding Man Student Award
Outstanding Woman Student Award
Outstanding Junior in Chemical Engineering
Outstanding Sophomore in Chemical Engineering
Outstanding Senior Women, AWS
Outstanding Speaker Award
Outstanding Teacher (Mechanical Engineering)
Francis Price Hispanic Studies Award
Research Promise in Psychology
Warren E. Schutt Memorial Award
Aida and Philip Siff Prize (Philosophy)
Aida and Philip Siff Purchase Art Award
Thomas More Storke Medal for Excellence
Women's Physical Education Club Award
C. Douglas Woodhouse Award in Geology

HONORS AT GRADUATION

Students who have completed their fields of concentration with distinction and who have general records satisfactory to the Committee on Undergraduate Honors, Scholarships, and Prizes are recommended for graduation with honors, high honors, or highest honors.

Honors at Graduation will be based on the following grade point requirements, and will be granted with the consent of the candidate's major department.

	Required quarters in residence and grade point averages at the University of California		
	12 quarters	9–11 quarters	6–8 quarters
Highest Honors	3.60	3.65	3.75
High Honors	3.30	3.40	3.50
Honors	3.00	3.10	3.25

The number of quarters will be determined by dividing the total University of California units earned (including summer session units, but excluding University of California Extension) by 15. A minimum of 90 units earned at the University of California will be required for consideration for Honors at Graduation.

W. Swalling

Student and professor in the Archaeology Learning Center

Student Services and Activities

STUDENT HEALTH SERVICE

A Student Health Service is provided on campus, staffed by qualified professional personnel and equipped with modern diagnostic and treatment facilities. Its primary purpose is to assist the student in maintaining the best possible physical and mental health and to prevent, insofar as is practicable, loss of time and efficiency due to illness or injury, in order that he may take full advantage of his academic opportunities.

Students enrolled on this campus may receive such medical care as the Student Health Service is staffed and equipped to provide, beginning with the first day and ending with the last day of each quarter in which they are enrolled, or the date of official withdrawal from the University. Additional service may be provided for seven days after the last day of the quarter. Any prospective registrant who receives health service and who fails to complete registration for that quarter will be charged for medical care on a fee-for-service basis.

The Student Health Service does not provide total health care. The health care provided on campus is limited by the staff and facilities available. However, in case of injury or illness, the student should, whenever feasible, report to the Student Health Service as soon as possible so that medical care can be initiated.

It is recommended that prospective students have existing physical defects corrected prior to enrollment at Santa Barbara. The Student Health Service does not assume responsibility for treatment of health defects, including visual and dental, existing prior to registration week.

The Student Health Service supplements but does not replace the personal physician. Full and mutual cooperation is encouraged between the student, the Student Health Service and the personal physician.

Requirements

Continuing students transferring from other University of California campuses:

1. Request the Student Health Service of the University of California campus from which you are transferring to transfer your medical records, or photocopies thereof, by mail, to the Student Health Service, University of California, Santa Barbara.
2. When your records are received at the UCSB Student Health Service, they will be reviewed. If all items are in order, nothing further will be required of you. If any items need clarification, or completion, or if there is some restriction on your physical activities, as indicated by your medical records, you will be notified to report to the Student Health Service.

All new entering students and all students re-entering after an absence of one year or more:

1. A completed Medical History (UCSBSH Form #1A).
2. A physical examination performed by a physician within one year prior to the first day of classes (UCSBSH Form #1B).
3. A Tuberculin Skin test done within one year prior to the first day of classes. If there is a history of previous positive skin test, a chest x-ray within one year is required.
4. Tetanus immunization is strongly recommended for all students, and is required for those planning to participate in intercollegiate sports.
5. Completed medical forms (Medical History UCSBSH Form #1A and Physical Examination UCSBSH Form #1B) must be returned to the Student Health Service before the beginning of the current quarter.
6. When your records are received at the Student Health Service, they will be reviewed. If all items are in order, nothing further will be required of you. If any items need clarification or completion, or if there is to be some restriction on your physical

activities, as suggested by your private physician, you will be notified to report to the Student Health Service.

Supplementary Insurance for Off-Campus Care

The Student Health Service program on Campus is supplemented by a Student Accident and Health Insurance Plan sponsored by the Associated Students. The Plan provides benefits for certain medical expenses which cannot be taken care of at the Student Health Service. In case of injury or illness, the student should, whenever possible, first report to the campus Student Health Service. A descriptive brochure and related forms will be mailed to prospective students prior to payment of fees. Participation in the Plan is required of all registered students unless the waiver form provided by mail is signed and returned with your other registration papers at the time of payment of registration fees.

STUDENT COUNSELING AND ADVISING

The counseling program at Santa Barbara gives attention to the individual needs and capabilities of all students.

The Dean of Students and his staff are available for discussion and advice in regard to general orientation to college life, study techniques, social problems, housing, employment, loans, scholarships, vocational planning, and personal problems. The Foreign Student Adviser is available for special consultation in Building 434.

The Dean of the College of Letters and Science is responsible for the general curricula followed by all students in that college. He counsels students in regard to the nature and organization of majors, changes in majors, and the general education program.

The Education Advising Office in the Graduate School of Education provides advice and counsel regarding all graduate programs in Education including credential requirements as specified by the State Department of Education. Undergraduate students are assisted in the choice of suitable major and minor areas of study to meet credential specifications. Students are alerted to the existence of several services available at UCSB that often prove helpful to future teachers. Detailed information regarding professional preparation and planning of a projected graduate program is handled by this office.

Orientation Programs

A voluntary summer program of orientation, testing, counseling, and pre-enrollment is conducted jointly by the Counseling Center, Dean of Letters and Science, and the Dean of Students. All Freshmen and their parents are invited to attend one of a series of two-day orientation programs designed to acquaint participants with the campus and reduce the confusion attendant with beginning college. Participants live in University residence halls during the program.

Many orientation activities are held on campus the week before classes begin in the fall. The Schedule of Classes lists the required activities. In addition, a student organized program, Rebysont, coordinates and publicizes a variety of programs to acquaint the new student with campus and community activities and to assist him in adjusting to University life. Other orientation activities are held each quarter, sponsored either by the Associated Students or the Office of the Dean of Students.

During the summer there is a six-week orientation program designed especially for new foreign students.

Social Security

Students who may qualify for benefits under the Social Security Act should apply for benefits at the Social Security office. Information and certifications regarding University enrollment are available in the Registrar's Office. Students receiving benefits are reminded to maintain a full time study load.

Vocational Rehabilitation Services

Students who have a physical, emotional, or other disability which handicaps them vocationally may be eligible for the services of the State Department of Rehabilitation. These services include vocational counseling and guidance, training (with payment of costs such as books, fees, tuition, etc.) and job placement. Under certain circumstances students may also qualify for help with medical needs, living expenses and transportation.

Students who believe they may qualify for assistance should contact the State Department of Rehabilitation Office at the Santa Barbara District Office, 411 East Canon Perdido Street, Santa Barbara 93101; phone number (805) 963–4351.

Dean Robert Evans in the Dean of Students' Office will assist physically handicapped students who have any particular problem with class schedules, parking, or housing, and will assist blind students in obtaining tape recorders, readers, etc.

STUDENT COUNSELING CENTER AND PSYCHOLOGICAL SERVICES

The Counseling Center offers the services of Counseling and Clinical Psychologists to all students in the University, without charge. This service is provided to give students an opportunity to explore personal aptitudes and interests in relation to their work at the University and to discuss problems of personal development which may be sources of distress or of interference with their effectiveness as students. General testing and consultation services are also provided.

Specialized services are provided at each of these Centers:

ADMINISTRATION BUILDING: Individual appointments with counseling psychologists; limited psychiatric consultation; testing.

PERSONAL EXPLORATION CENTER (Building 478): Professional counselors are available daily, 10 to 12, 2 to 4, without a previous appointment. There is also a Career Development Library which makes information available about career opportunities and graduate schools. Trained receptionists are available to help the student in his use of the materials, and in the identification of his interests.

COMMUNITY COUNSELING CENTER (Isla Vista Community Service Center): Students may find a psychologist available here in the afternoons and evenings between 2 and 10 P.M. This is an informal drop-in service designed to be of special usefulness to those students who live in Isla Vista.

READING-STUDY CENTER (Building 432): Here individual and group help is offered in the development of effective learning skills both in basic habits of reading and written communication, and in specific subject matter.

Other special services offered by the Counseling Center are Marital Counseling, group sessions, testing to guide students to appropriate specialized programs, and referral of staff or those with specialized needs to appropriate agencies.

All counseling is completely confidential.

INFORMATION FOR VETERANS AND VETERANS' DEPENDENTS

Veterans and children of disabled or deceased veterans eligible for Federal educational benefits should obtain an authorization certificate from the United States Veterans Administration Regional Office at 49 Fourth Street, San Francisco 94103, or 11000 Wilshire Boulevard, Los Angeles, California 90024. This certificate should be filed at the time of registration with the Dean of Students, 3117 Administration Building. State veterans' dependents may obtain authorization from the State Department of Veterans Affairs, Division of Educational Assistance, P.O. Box 1559 Sacramento 95807; or 350 McAllister Street, San Francisco 94102; or 830 North La Brea, Inglewood 90309. State veterans' dependents will report to the Office of the Dean of Students, where they may obtain deferment of fees.

All veterans and veterans' dependents should be prepared to maintain themselves financially for a period of from 60 to 75 days pending receipt of their first subsistence checks.

SELECTIVE SERVICE

Matters relating to the deferment of students eligible under Selective Service are handled by the Office of the Dean of Students, Administration Building. Certifications regarding enrollment and other pertinent information will be submitted to the student's Selective Service Board only upon the student's request.

RANDOM SELECTION FOR MILITARY SERVICE

The random selection or "draft lottery" became effective January 1, 1970, for all registrants who prior to January 1, 1970, were 19 but not yet 26 years old (individuals whose birthdays fall between January 1, 1944 and December 31, 1950). The sequence number established for any registrant will apply to him so long as he remains subject to induction for military training and service by random selection. New random selection sequences shall be established for registrants who attain their nineteenth year of age on or after January 1, 1970.

There are two types of student deferments: Classes I-S and II-S.

I-S is a statutory deferment intended to permit a student who qualifies to complete high school or an academic year in college.

Class II-S is the classification given to students attending a college, university, or similar institution of learning.

To qualify for II-S, a student must be satisfactorily pursuing a full-time course of instruction.

He must request such deferment either on a Selective Service System Form 104 or by letter. In either instance, the request must be in writing and filed with his local board.

The "normal" progress guideline established by law is completion of 25% of the academic work required each year for four years. At UCSB the effective "normal" progress criteria is progression from one year group to the next as indicated in our catalog (i.e., 40.5 units to be a sophomore, 84 to be junior, 135 to be senior). We will indicate "fulltime" student status if you attend three out of four quarters and complete a minimum of 36 units in an academic year—but it should be pointed out that there is a difference between "fulltime" status and "normal" progress. An academic year is from September to September. If necessary, attend during the summer to maintain "normal" progress.

Eligibility for deferment in II-S expires upon attaining a baccalaureate degree, reaching the age of 24, or ceasing to be a full-time and satisfactory student, whichever comes first.

Student deferments are temporary and are reviewed at least once a year.

A student is classified on the basis of the facts in his individual case. His classification may be changed any time his circumstances change.

College deferments are also based on reports from the college. It is the responsibility of the individual student to see that his college supplies these reports to his local board by the submission of Selective Service Form 109 or 109A for undergraduate students and Selective Service System Form 103 or 103A for registrants in graduate school. Such requests may be made by placing the Selective Service number on the profile sheet in the packet.

Each time a student is classified or reclassified he has the right of appearing personally before his local board and of appealing his classification. If attending college away from home, he may request that his case be reviewed by the Appeal Board having jurisdiction over the area in which his college is located.

A college student not in the ROTC program is classified in Class II-S. A college student in the ROTC program is classified in Class I-D. To retain a I-D classification, the student must satisfactorily participate in the ROTC program.

A full-time college student who is doing satisfactory work and is ordered for induction during his school year, may request and be classified in Class I-S (C) until the end of his academic year or until he ceases to satisfactorily pursue his course if he has not previously been classified in Class I-S (C) or received his baccalaureate degree.

Even though the draft law does not provide specifically for a II-S deferment for graduate students except for students in the health service areas, it is still reasonable for a graduate student in any academic field to present his case and request deferred classification.

It is anticipated that student deferments may be completely phased out by the date of this publication. Such modifications of the Selective Service regulations will be made available to the student as they occur.

PLACEMENT CENTER

Student Part-Time and Summer Employment

It is expected that a student devote the major part of his time to his studies. Although many students plan to earn part or all of their expenses, it is strongly advised that students attempt no outside employment until they have made satisfactory adjustments to the demands of their academic work and of university life. Some students are able to carry an average program and from ten to twenty hours of outside work per week without jeopardizing scholarship, health, or participation in college activities. *It is recommended that lowerclassmen plan to work no more than fifteen hours a week.* Outside employment should be reduced or discontinued if it interferes with academic work, since the student's first responsibility is to his studies. Applications for part-time work are made through the Placement Center, Room 1325H, Administration Building.

A student should not arrange for employment until his academic program is planned for the quarter. If his program does not permit regular working hours throughout the quarter, the student should seek employment of shorter duration or irregular hours which may be fitted into his program. There are part-time jobs available for women and men; however, it is not always possible at the time of registration to place each student desiring employment.

Information for summer employment at the local level, as well as nationally and internationally, is available in the Placement Center. Students interested are urged to register during the fall and winter quarters.

Educational Placement Service

The Educational Placement Service assists undergraduate and graduate students and former students in planning careers in the field of education and in locating teaching, counseling, administrative, supervisory and research positions in universities, colleges, junior colleges, high schools and elementary schools.

Attention is given to initial employment and subsequent relocation and promotion. The Educational Placement Service registers candidates and assists them in developing information into personal files concerning the background, training and professional experience in order to match qualifications of candidates with specifications of available positions. Placement Advisers counsel candidates, communicate with employers, arrange on-campus interviews, and notify candidates of available positions for which they are qualified, considering former students as well as those currently completing credential requirements.

All candidates for positions are expected to reimburse the Placement Center for telephone messages and telegrams found necessary by Placement Advisers in transactions in behalf of the students.

The Educational Placement Service is located in Room 1325, Administration Building.

Student and Alumni Placement Center

Through the facilities of the Student and Alumni Placement Center, a staff of professional advisers is available for consultation and guidance on career planning and placement, as well as resumé construction, letter writing and interviewing.

The Placement Center maintains a library of employment opportunity information useful for undergraduates as well as graduating seniors. Students are encouraged to consult this material as they make decisions relative to their academic programs and eventual career objectives.

Candidates for a degree, graduate or undergraduate, are urged to register as soon as possible in their last year in order that they may be referred well in advance of graduation to employers from business, industry and government. Such referrals may involve off-campus interviews at employers' regional and home offices or on-campus interviews with employer representatives who visit the Placement Center annually from October through May.

This service is available to all regularly enrolled students of the University, their spouses, and alumni of the University who are unemployed or who desire career relocation. The Student and Alumni Placement Center is located in Room 1325, Administration Building.

THE ASSOCIATED STUDENTS

The undergraduate student self-government is organized and administered by the Associated Students. All undergraduates hold membership by virtue of paying the required ASUCSB membership fee at registration. The organization consists of the Associated Students Legislative Council which directs the work of the many committees and boards. It provides a spectrum of cultural and social activities which contribute to the enrichment of the undergraduate's college experience.

Members are entitled to participate in the affairs of the Associated Students, and to a subscription to the campus newspaper. Other benefits include reduced admissions to athletic, dramatic, social, and similar events which are part of the program of the Associated Students.

The Association offices are located in the University Center. The Associated Students Executive Director's Office supervises the business operations of the Association and also offers a variety of services such as check cashing, health insurance, and small short-term loans.

GRADUATE STUDENTS ASSOCIATION

Established as a graduate student government by referendum in October 1969, the Graduate Students Association serves "to represent the opinions and interests of the graduate students." A council, generally composed of fifty elected representatives from the graduate departments, and an executive committee, made up of five officers chosen from the counsel, hold monthly meetings, open to any graduate student.

To insure that graduate interests are voiced and heard, the Graduate Students Association places members on many of the important committees directing University affairs and publishes a newsletter, *The Grad Bag,* which besides publicizing the organization's views, disseminates information of interest to graduate students.

The GSA office is located in the University Center, room 2275A, telephone 961-3824. The staff of the GSA welcomes requests for further information and hopes that any graduate student needing its services will feel free to telephone or visit the office.

THE UNIVERSITY CENTER

The University Center is the focal point for the out-of-class life of the campus. It serves as a gathering place for students, faculty, alumni, affiliates, and townspeople. The Center provides many services to the campus community which gather around a program designed to influence the cultural and intellectual lives of students. The Center offers every student the opportunity to participate in and enjoy a wide variety of activities. These range from educational, social, and recreational to service projects, allowing each student an opportunity to develop qualities of responsibility and leadership in helping to plan and implement them. Within the Center are located the Campus Bookstore, a coffee shop and dining room, music listening rooms, art studios, conference rooms, lounges, program areas, and other facilities incident to student activities on the campus.

STUDENT ACTIVITIES

Student Organizations. The major student organizations include the Associated Students, Recreation Commission, and departmental and class organizations.

In addition to these, the University of California, Santa Barbara, offers opportunity for membership in many national honorary professional fraternities, national and local service organizations, and special-interest groups. There are nine academic honorary organizations and nine honorary service organizations as listed below. In addition, there are a number of departmental clubs not listed.

Honorary Organizations

Alpha Lambda Delta (Freshman Women)
Cal Club (Intercampus)
Delta Sigma Rho-Tau Kappa Alpha (Forensics)
Kappa Delta Pi
Mu Phi Epsilon (Women's Music)
Phi Alpha Theta (History)
Phi Beta Kappa
Pi Kappa Lambda (Music)
Pi Sigma Alpha (Political Science)
Scabbard and Blade (Military Science)

Honorary Service Organizations

Block C (Lettermen)
Blue Key National (Upperclassmen)
Chimes (Junior Women)
Colonel's Coeds (R.O.T.C. support)
Mortar Board (Senior Women)
Honey Bears (Women's Hostess Group)
Pharteres (All Women)
Spurs (Sophomore Women)
Squires (Sophomore Men)
Alpha Phi Omega (National Service Fraternity)

Residence Hall Organizations. Students in University-owned residence halls are organized in living groups and conduct social, recreational, and cultural activities for their members. All these organizations are integrated by means of a Residence Hall Association. Student government at this level is coordinated with the Associated Students through participation of Residence Halls Association Legislature members on appropriate Associated Student committees and boards.

Sororities and Fraternities. There are nine national sororities and eleven national fraternities. These function through the Panhellenic Council and the Interfraternity Council respectively. New women students may apply for Fall Rush after June 1, 1970. The deadline for return of completed application forms will be given on application material. Further information about these organizations may be secured from the Office of the Dean of Students.

Student Activities. The Associated Students sponsors the publication of a newspaper, a yearbook, a student directory, debating, radio programs, speech contests, speakers, dramatics, a dance concert, musical productions, assembly programs, and special programs of dances, picnics, and forums as well as a variety of community service projects.

Eligibility for Office in Student Organizations. In order to be a candidate for office, or to maintain an office, a student must have a total scholastic average of at least a grade C, and must have earned at least a grade C average the previous quarter and carry a program of no less than 12 units.

STUDENT MAIL

Any student who is not living in a dormitory room on campus may rent the locked mail boxes available in the University Branch Post Office located in the University Center. Application for a box may be made prior to enrollment by applying to the University Branch Post Office, Santa Barbara, California 93107. Rates are: 45¢ per academic quarter or $1.80 per year (includes summer months). Students residing in on-campus residence halls will have a locked mail box preassigned to them in the University Branch Post Office. This mail box will be assigned in accordance with the room assignments in the Residence Halls. Any students who move from one room to another will retain their assigned P. O. Box for the remainder of the school year.

Students living off-campus will have their mail sent directly to their residence in which case they should use the proper street address, city and zip code.

Services available at UCSB Branch Post Office include selling stamps, money orders; mailing insured and other packages and handling all kinds of mail.

General Regulations

REGISTRATION

Each student must register at the University of California, Santa Barbara, at the time appointed for that purpose, at the beginning of each quarter. Registration procedure includes: payment of fees; the completion of registration forms; enrollment in courses; clearance with certain offices as indicated in registration and enrollment instructions; and presentation of the completed packet to the Registrar.

Failure to register within the prescribed time limit (see pages 5–7) is certain to cause difficulty in the making of a satisfactory program and to retard the progress both of the student himself and of each class to which he may be admitted. *After the first week of instruction,* registration will be permitted only under unusual circumstances.

Every graduate student in good standing will be required to register with the Registrar of his campus each quarter until the completion of all requirements for the degree for which he is working. Failure to register, or petition for an official leave of absence, will constitute presumptive evidence that a student has withdrawn from the Graduate Division. Graduate students who fail to register, and who wish to resume their graduate studies, will be required to file reapplication forms and pay a $20 fee. There is no guarantee that readmission will be granted. Further information may be obtained from the Graduate Division.

ENTRANCE AND RE-ENTRANCE MEDICAL REVIEW

All new entering students, and *all* students re-entering after an absence of one year or more, are required to have a physical examination by a private physician with completion of history and physical examination forms (UCSBSH Forms #1A and 1B). These completed forms will be screened by Student Health Service personnel. Those students whose history and physical examination forms have significant deficiencies or have evidence of conditions which would warrant evaluation and review by a Student Health Service physician will be notified to report to the Student Health Service.

Students transferring from another University of California campus should request the Student Health Service of the campus from which they are transferring to mail their medical records to the Student Health Service, UCSB, upon completion of the current quarter. If, after reviewing the medical records, it is considered necessary for the students to be seen by a Student Health Service physician, they will be notified to report to the Student Health Service.

Students who have withdrawn for medical reasons and are returning within one year must submit a letter from their private physician to the Student Health Service, UCSB. The letter should indicate that the students are medically qualified to re-enter and should contain any recommendations the physician may have regarding physical activity limitations. If it is necessary for these students to be seen by a Student Health Service physician, they will be notified to report to the Student Health Service; otherwise, medical clearance will be sent to the Registrar and the students will be notified by mail that clearance has been given.

SUBJECT A: ENGLISH COMPOSITION

Every undergraduate must demonstrate an acceptable level of ability in English composition. This requirement may be met by one of the following:

1. Achieving a grade of 5, 4, or 3 on the College Entrance Examination Board (CEEB) Advanced Placement Examination in English, or

2. Achieving a score of 550 or higher on the College Entrance Examination Board Achievement Test in English Composition, or
3. Entering the University in advanced standing and achieving an acceptable score on the College Level Examination in English Composition.
4. Entering the University with credentials showing the completion of an acceptable college-level course in English composition with a grade of C or better.

Transfer students who enter UCSB without having taken any of the above tests, 1 through 3, and without a college-level course in English composition, completed with a grade of C or better, will be required to take a special examination at the beginning of the first quarter of attendance at the University. The time and location is published quarterly in the front of the *Schedule of Classes.*

Satisfaction of the Subject A requirement is determined by the Office of Admissions.

A student not meeting the requirement in one of the ways described above must enroll in the non-credit course in Subject A during his first quarter of residence. Should any student fail the course in Subject A, he will be required to repeat it each quarter of his residence until he passes. A fee of $45 is charged for the course, and this charge will be repeated each time the course is taken. The fee must be paid before Registration Packets are filed.

A continuing student who fails the Subject A *course* at the University and then completes the equivalent of English 1A with a grade of C or better at another institution either during the summer or while not enrolled in the University will receive transfer credit for English 1A and will have met the Subject A requirement.

Students who maintain an A grade in the Subject A course are permitted on recommendation of the Committee on Subject A to withdraw from the course and are excused from the requirement.

All foreign students whose mother tongue is not English must take the English Language Placement test for foreign students. Those who pass this special examination will have met the Subject A requirement, as will students who subsequently complete, with a grade of C or better, English as a Second Language 1C, the advanced course in English for foreign students.

RESIDENCE REQUIREMENTS

For the Bachelor's Degree

The minimum residence requirement for a Bachelor's degree is three terms in the University of California, and the student must take 35 of his *final* 45 units in residence in the college or school in which the degree is to be taken. Not more than 18 of the 35 units may be completed in summer session courses on the campus of residence. In order for an undergraduate student to be in residence in any regular term, he must be enrolled for at least six units of resident courses of instruction.

Students who are admitted to senior standing in the College of Letters and Science on the basis of credit from another institution, from University Extension, or from another college or school of the University, including transfers from the College of Letters and Science on another campus of the University, must complete, subsequent to such admission, at least 27 units of upper division courses, including at least 18 in their major.

A student who is enrolled in the Education Abroad Program may satisfy the residence requirement by earning 35 of his final 90 units, *including the final 12 units*, in residence in the school or college of the University in which the degree is to be taken.

AMERICAN HISTORY AND INSTITUTIONS

This requirement is based on the principle that an American student enrolled at an American university should have some knowledge of (1) the history, and (2) the government of his country. The following courses contribute to that objective either by breadth of coverage of American history and institutions, or by depth of concern with significant aspects and periods. The requirement may be satisfied by completion of any two courses chosen from the following list:*

Political Science 5, 10, 12, 15, 100, 113, 115, 152, 155, 166, 167, 172, 174, 176.

History 8A–B, 17A–B, 101A–B, 160A–B, 161, 162A–B, 163A–B, 164A–B, 165A–B, 166A–B, 167A–B, 168, 169A–B, 170A–B, 171A–B, 172A–B, 173A–B–C, 174A–B, 175A–B–C, 176A–B, 177, 178A–B, 179.

Economics 113.

Sociology 45, 128, 132, 144.

Black Studies 1A, 101.

Chicano Studies 1A–B–C.

Equivalent courses taken in University Extension or in summer session are acceptable. Where appropriate, courses used to satisfy this requirement may also be applied to General Education and/or major requirements. Alternative methods of satisfying the requirement are:

1. Passing a noncredit examination in American history or American institutions. These examinations are offered during the first week of each quarter. For further information see the Department of History or the Department of Political Science.
2. Achieving a score of 3 or higher on the CEEB Advanced Placement Examination in American History.
3. Presenting evidence that the requirement has been satisfied at another collegiate institution whose credits are acceptable for transfer at the University of California, Santa Barbara.

PSYCHOLOGICAL EXAMINATION

For purposes of advising, counseling, and research, psychological examinations may be given to all students new to the campus and the College of Letters and Science during the summer (contact the Counseling Center for dates) and during the week of registration. (See details in the *Schedule of Classes and Directory.*)

MUSIC PLACEMENT EXAMINATION

All new music majors, whether freshmen or transfers from other institutions, are required to take placement tests in music theory and performance. These tests determine which courses in these fields shall be elected by the new music major.

THE RESERVE OFFICERS' TRAINING CORPS (ROTC)

The Morrill Act of July 2, 1862, creating the system of land-grant institutions, of which the University of California is one, required those institutions to offer military training courses. Military training at the University of California is offered on a voluntary and selected basis. Both basic and advanced courses in ROTC are given in the Department of Military Science. The United States government furnishes uniforms and equipment for students formally enrolled in ROTC. For details see Military Science listing under Courses of Instruction.

GRADES OF SCHOLARSHIP; GRADE POINTS

The work of all students in the University of California, Santa Barbara, shall be reported in terms of six grades except as provided below with regard to undergraduate

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* "Course" refers to a one-quarter offering (e.g., History 17A).

Passed (P) or *Not-Passed* (NP) grades and graduate grades (S) and (U); (a) *passing:* A (excellent), B (good), C (fair), D (barely passing); (b) *not passing:* F (failure); (c) *undetermined:* I (incomplete). Grades are not otherwise defined, as for example, by percentages, or by a rule stipulating the manner in which the several grades shall be distributed.

Grade points per unit shall be assigned by the Registrar as follows: A = 4, B = 3, C = 2, D = 1, F and I none.

The grade I (Incomplete) may be assigned when a student's work is of passing quality, but is incomplete because of circumstances beyond his control. To replace this grade, the student must complete the work of the course as determined by the instructor and the Dean of the student's college or school (or the Dean of the Graduate Division). However, the student may not repeat a course in which an incomplete grade has been assigned. When this grade is thus converted to a passing grade, the student may petition to receive the appropriate grade points. It should be noted that grade points will not be allowed unless the circumstances necessitating the I grade were exceptional. *No work may be undertaken to convert grade I to a passing grade until formal application has been made to the Office of the Registrar.*

All grades except I (Incomplete) are final when filed by an instructor in his end-of-term course report. No term grade except I (Incomplete) may be revised by re-examination.

A student may repeat only those courses in which he has received a grade of D, F or NP. No student may repeat such courses more than once, except as authorized by the appropriate dean. Courses in which a grade of D or F has been earned *may not* be repeated on a Passed/Not Passed basis. In computing the grade-point average of an undergraduate who repeats courses graded D or F, only the most recently earned grades and grade points are used for the first 16 repeated units. In the case of further repetitions, the grade-point average is based on all grades assigned and total units attempted. It is the responsibility of the student to indicate repeat courses in the study lists at the time of filing.

Passed or Not Passed Grading System

Any student may enroll on a Passed/Not-Passed basis in one-half unit Physical Activities courses which satisfy General Education requirements. A student in good standing may, in addition, take one resident undergraduate course per quarter on a Passed/Not-Passed basis. This privilege does not extend to courses required for the student's major or to courses excluded by the instructor or the department concerned. A student who receives two Not-Passed grades shall be excluded from electing Passed/Not-Passed for one quarter. Thereafter, the provisions for electing one resident undergraduate course per quarter prevail until this privilege is again suspended as stated above.

A grade of Passed is awarded only for work of quality equivalent to a grade of C or better. Course enrollments under the Passed/Not-Passed option are disregarded in computing a student's grade-point average, but units earned in courses graded Passed constitute degree credit. Election of the Passed/Not-Passed option must be indicated at packet filing time on the official class card and study list. After packet filing, but prior to the end of the seventh week of instruction, a student in the College of Letters and Science or in the College of Engineering may, on petition to the Registrar, change a Passed/Not Passed enrollment to an enrollment under the A–F letter grade system, but he may not do the reverse.

All students in the College of Creative Studies are graded Passed/Not-Passed in courses offered by the College; in courses taken outside the College the regular letter grade system applies.

Eligible students may enroll for Passed/Not Passed grades in any courses *except* those indicated by an "X" to the left of the course number in the *Schedule of Classes.*

Provisions regarding the grading of certain work done by graduate students: Subject to approval of the Graduate Council, and with the consent of the department, students pursuing individual programs of research and study or engaged in other appropriate graduate activities of an individual nature may receive unit credit for such work for which they shall be marked *Satisfactory* (S) or *Unsatisfactory* (U). In calculating grade point standing, units gained in this way shall not be counted. No credit will be allowed for work marked *Unsatisfactory.*

Courses failed at the University of California and successfully repeated elsewhere are admissible for credit when acceptable for transfer to Santa Barbara. However, such repetition does not remove the failure grade from the student's record on this campus.

Withdrawal from a Course. To withdraw from a course after the period for change of program established by the Executive Committee of the college or school in which a course is offered, an undergraduate student must obtain by petition the approval of the dean of the college or school. In the College of Letters and Science the period for change of program is until the end of the sixth week of instruction. Students in the College of Engineering should consult the Office of the Dean of the College regarding deadlines for withdrawals from courses. Information about withdrawals from graduate courses may be obtained from the Office of the Dean of the Graduate Division. In each case the Dean shall consult the instructor involved. At the Dean's discretion, the Dean may cancel the student's enrollment in the course, or he may excuse the student from attending the course and direct the Registrar to enter a grade of F on the student's official record. The Dean may also stipulate that re-enrollment in the course will be authorized only with his approval. The Registrar will enter a grade of F for each unauthorized withdrawal from a course.

Addition of Courses. No student in the College of Letters and Science may add a course to his program after the end of the third week of instruction. Students in the College of Engineering and graduate students should consult the Dean of the College of Engineering or the Dean of the Graduate Division regarding the addition of courses to their study lists subsequent to filing of such lists.

Mid-term Warning. Warning notices are sent at mid-term to students who are enrolled in freshman level classes and have received an average of D or F in any such course. A student who at the middle of any quarter has received these unsatisfactory grades in two or more subjects, excluding Subject A and Physical Activities, should consult with his adviser.

SCHOLASTIC DISQUALIFICATION

The following minimum provisions apply to all undergraduate students at Santa Barbara except students in the College of Creative Studies.

Academic Probation. An undergraduate student is normally subject to academic probation if at the end of any term his grade point average for that term or his cumulative grade-point average is less than 2.0 (C average) computed on the total of all courses undertaken in the University except those graded P or NP. Normally the basis for removal from probation shall be a 2.0 grade-point average based on all work taken at the University.

Academic Disqualification. An undergraduate student is subject to disqualification for further registration in the University (a) if at the end of any term his grade-point average for that term is less than 1.5, or (b) if he has completed two consecutive terms on academic probation, or (c) if he accumulates more than 16 units of Incomplete (I) not yet replaced by regular grades.

To be eligible for continued registration in the College of Creative Studies, a student must maintain a grade-point average of at least 2.0 in all University courses undertaken outside the College. Students with scholastic deficiencies in such courses are subject to the Faculty supervision specified below for other undergraduates. With the approval of the President of the University and the College Executive Committee, the Provost may require any student to withdraw from the College on recommendation of the student's adviser.

Except as herein provided, in the calculation of an undergraduate student's grade-point average at the end of each term, the grade *Incomplete* is disregarded. However, the dean of the student's college may use this grade in reviewing the student's record to decide whether he must be under special supervision as provided in the Senate scholarship regulations. A student with more than 16 units of *Incomplete* not replaced by final grades is subject to scholastic disqualification and he may not register in the University until he has met such conditions as the dean of his college may impose. This disqualification remains in force even after the student has removed some of his I grades; moreover, he remains subject to such conditions as the dean has imposed.

A student's scholastic status is subject to review by the dean whenever the Registrar's check of scholastic standing at the junior level discloses a grade-point average below C based on *all* courses except those graded P or NP undertaken in the University, including courses graded Incomplete.

An undergraduate student who fails to meet the minimum scholastic requirements specified above is subject to such supervision as the Faculty of his college may determine. The Faculty or its designated agents may (1) disqualify such a student for further registration in the University as provided above; (2) suspend his disqualification, continuing him on probation; or (3) authorize the return on probation of a disqualified student. Disqualification of *graduate* students is at the discretion of the Dean of the Graduate Division.

In order to transfer from one campus of the University to another, or from one college or school to another on the same campus, a student must obtain the approval of the appropriate Faculty, or its designated agent, to whose jurisdiction transfer is sought. Upon completion of the transfer, the student is subject to the supervision provided for above.

CLASSIFICATION OF STUDENTS

Lower Division

A student with 40.4 units or less (counting Subject A) is classified as a freshman. A student with 40.5 units completed (counting Subject A) but less than 84 is classified as a sophomore. The emphasis in the lower division (freshman and sophomore) in all departments is upon General Education rather than specialization.

Students without declared majors during the freshman year should follow the standard program advised for all freshmen (see page 63).

Upper Division

Students with 84 units or more, but less than 135, are classified as juniors. Students with 135 or more units completed are classified as seniors. In order to receive the B.A. degree, each student in the College of Letters and Science must have at least 60 upper division credits which are chosen from the Letters and Science List of Courses.

Units of Credit

Credit for academic work undertaken at the University is evaluated in terms of units. The value of a course is reckoned at the rate of 1 unit for three hours' work per week per quarter on the part of the student. The credit value assigned to a course is not determined by the number of class meetings per week, but by the number of hours of work required of the student. A student who desires to make up any high school subject deficiency by offering work of college level can, in one University quarter, earn credit equivalent to the credit of one year of work in high school.

LEAVES OF ABSENCE

Leaves of Absence from Classes, Examinations, and Final Examinations. A brief leave of absence from classes, or examinations, for a specified period of time may be issued by the Office of the Dean of Students to a student who finds it necessary to be absent, or who has incurred such absence, *for reasons beyond his control.* No excuse for absence will relieve the student from the necessity of completing all the work of each course to the satisfaction of the instructor in charge. Forms may be obtained from the Office of the Dean of Students.

Authorization for off-schedule final examinations will be granted only upon approval of a petition available in the Registrar's Office.

COMPLETE WITHDRAWAL—HONORABLE DISMISSAL

An *Official Withdrawal* may, upon petition, be granted to any student provided he complies with the instructions on the appropriate petition form available in the Office of the Registrar. The Dean of the College of Letters and Science may attach conditions to his approval of the petition, or may deny the petition of a student who attempts to withdraw late in the term without just cause.

Discontinuance Without Notice. A student who discontinues his work during a quarter without formal withdrawal may have his registration privileges curtailed or revoked. In order to withdraw from the University at any time during the quarter without penalty, a student must submit a petition for honorable dismissal. Otherwise, the student will receive grade F in all courses in which he is enrolled for that quarter.

Lapse of status means the enforced withdrawal of a student from the University. Failure on the part of any student to meet certain obligations may result in lapse of his status. A student's status may be lapsed: (a) for failure to file his Registration Packet within the prescribed limit of time; (b) for failure to settle financial obligations when due, or to make satisfactory arrangements with the Cashier if payment cannot be made; (c) for failure to complete the Physical Examination; (d) for failure to respond to official University notices.

READMISSION AFTER ABSENCE

All former students who wish to re-enter the University of California, Santa Barbara, must file an application for readmission with the Registrar. Official transcripts of all work attempted in the interim must be submitted.

STUDENTS' PROGRAMS

Simultaneous Registration. Enrollment in classes both at UCSB and another institution (such as SBCC) during a regular quarter is not permitted without the prior approval of the dean of the student's college.

Extension Credit toward Graduation. Units received in University of California Extension courses prefixed by X, XB, XD, XL, XR, XSB, XSF, or in Extension courses acceptable for transfer to the University of California from other universities, may be counted toward graduation. Credit for courses in the X300 and X400 series is acceptable only within the limitations prescribed by the appropriate school or college. All students must petition for authorization to take such Extension and correspondence courses. Forms may be obtained at the Registrar's information window. Such courses taken while the student is regularly enrolled at Santa Barbara must be (1) included in the student's program, (2) counted as a part of the student's course load. The entire approved study list must be filed with the Registrar's Office *before the work is undertaken.*

Average Program. An average program for other than freshman students is 15 units of work per quarter; however, a student who is physically impaired or not in good health may be required to carry a reduced program. *A male student expecting deferment from military service should plan a program of at least 15 units of work each quarter.*

Graduate Study List Limits. See page 78.

Program Changes. After a student has filed his packet with the Registrar, changes may be made only upon petition. The approval of the dean of the student's college or school, or Graduate Division is necessary for students with excess or deficit programs. New freshmen in the College of Letters and Science must obtain the approval of the Dean of the College of Letters and Science.

It is the policy of the College of Letters and Science to require each undergraduate student in the College with 135 or more units completed to petition before enrolling in any course at another institution.

Study List Limits in the College of Letters and Science

Minimum Program. Twelve units of work constitute a minimum full-time program for regular students and is the lowest limit permitted students participating in student and intercollegiate activities.

Maximum Program. Freshman students are advised to limit first-quarter programs to 12–15 units, and maximum without petition is 17 units. After the first quarter, regular students may enroll in a maximum program of 17½ units; however, a maximum of 18½ *without petition* is authorized for students with a grade point average of 3.0 (B average) in each of the two previous quarters. Transfer students are advised to program fewer than 15 units in their first quarter at Santa Barbara.

Students on probation may program at most 14½ units; handicapped students and students employed part-time are advised not to exceed this limit. Except as stated above, maximum and minimum programs different from those specified for the student's official classification will be authorized only on petition to the Dean of the College of Letters and Science. Such petitions must be filed *at time of pre-enrollment.*

Study List Limits in the College of Engineering

In the College of Engineering students' term programs are subject to the following limits:

14½ units:

Maximum number for any student on probation. Also recommended for handicapped or students involved with part-time employment.

17 units:

Maximum allowable for first term freshmen without petition to the Dean of the College of Engineering.

18 units:

Maximum without petition to the Dean of the College of Engineering allowed all students who have completed the first term of the freshman year.

12 units:

Minimum full-time program of all unemployed, physically able students. Petitions for excess or deficit programs must be submitted to the College of Engineering before Preferred Program cards will be processed. *Exceptions:* Transfer students should contact the Office of the Dean for evaluation of credit received elsewhere and for planning their programs for completing their requirements for the B.S. degree. In some cases the above requirements may be subject to modifications.

Study List Limits in the College of Creative Studies

The study list of each student in the College of Creative Studies normally consists of four courses totaling at least 15 units per quarter as approved and signed by the student's adviser prior to filing with the Registrar's Office. Exceptions to these provisions must be approved by the Provost.

CHANGE OF MAJOR

A student who wishes to change his major must obtain permission from the chairman of his proposed major department and the chairman of his present department. Petitions for this purpose can be obtained from the Office of the Registrar. The petition is not officially approved until the re-evaluation has been processed by the Office of the Dean.

Except in the case of closely related majors, no student is permitted to change his major after the opening of the first quarter of his senior year.

FINAL EXAMINATIONS

Final examinations are required in most undergraduate courses. Each course in which a final examination is not required is so indicated in the *Schedule of Classes* at the beginning of the quarter in which the course is given. So far as practicable, all examinations will be conducted in writing, and a maximum time will be assigned beforehand for each examination, which no student will be allowed to exceed. The time for examinations in non-laboratory courses may not exceed three hours. Students should note that instructors are not authorized to change the dates of final examinations. This does not apply to petitions granted in accordance with the procedure specified above under *Leave of Absence from Examinations.* There can be no individual exemption from a final examination except as provided in the case of Comprehensive Examinations.

Comprehensive Examinations. At the end of the quarter in which a student expects to graduate, his major department may examine him in the field of his major, may excuse him from final examinations in courses offered by the department during that quarter, and, with the approval of the Committee on Undergraduate Courses, assign a credit value to such general examination.

TRANSCRIPT OF RECORD

A record of academic work is prepared for each student and is retained permanently by the University. Records such as program changes and petitions of all types serve a limited purpose and generally result in entries made on the student's permanent academic record. These secondary records are retained for a limited period of time.

At the end of each quarter the student will be supplied with a copy of his work attempted and grades received during the quarter as well as the cumulative totals of work attempted and completed in the University.

The student is advised to check his copy of the grade report carefully and to report any discrepancies to the Registrar immediately. After a period of ten years from first registration, it is assumed the student accepts the accuracy of the record and the secondary records will be destroyed.

A student may obtain from the Registrar a transcript of his University record by making application directly to the Registrar well in advance of the time when the record will be needed by the applicant. A charge of $1 is made for each transcript.

PETITIONS

It is the student's responsibility to file appropriate petitions whenever he wishes to deviate from the usual pattern in regard to college attendance. Failure to do so may result in loss of credit and other privileges. The following matters require approval by prior petition: (a) adding or dropping courses or changing sections, (b) taking an excess or deficit load, (c) taking graduate courses while an undergraduate student, (d) obtaining credit for extension or correspondence courses, (e) obtaining credit by examination, (f) waiver or substitution of graduation requirement, waiver or substitution in major requirement, (g) honorable dismissal-withdrawal from the University, (h) taking off-schedule final examinations, (i) taking 199 courses, (j) reclassification of legal residence, (k) change of major, (l) removal of I grade, (m) off-campus work, (n), changing option from Passed/Not Passed to grade basis, and (o) changing colleges.

It is the policy of the College of Letters and Science to require each undergraduate in the College with 135 or more units completed to petition before enrollment in any course at another institution.

STUDENT CONDUCT AND DISCIPLINE

A student enrolling in the University assumes an obligation to conduct himself in a manner compatible with the University's function as an educational institution. Rules concerning student conduct, student organizations, use of University facilities and related matters are set forth in both University policies and campus regulations, copies of which are available upon request at the Office of the Dean of Students. Particular attention is called to the booklet *University of California Policies to Students and Student Organizations, Use of University Facilities, and Non-Discrimination* and to the Standard of Conduct set forth therein.

The Judicial Council of the Associated Students is concerned with means of promoting conduct appropriate to self-governing, responsible students and is empowered to recommend procedures and policies conducive to attaining this end. It welcomes participation by students. Living groups have their own judicial councils which enact certain penalties against members for infraction of residence regulations. Members of the faculty, the Faculty Committee on Student Conduct, and the Dean of Students are responsible to the Chancellor and to the President of the University for administering penalties in instances when students disregard University regulations or civil laws.

Degrees of Discipline. There are eight degrees of discipline: warning, censure, disciplinary probation, restitution, interim suspension, suspension, dismissal, and expulsion. Suspension is exclusion from the University for a definite period. Dismissal is exclusion for an indefinite period, with the presumption that the student's connection with the University will be terminated. Expulsion is the most severe academic penalty, and is final exclusion of the student from the University.

The University considers the effect of these measures upon the personal welfare and education of the individual students involved, as well as upon the welfare of the student body as a whole.

STUDENT RESPONSIBILITY

Each student is responsible for compliance with the regulations printed in this catalog and in the Schedule of Classes and Directory, with official notices published in the campus student newspaper, with the notices posted on official bulletin boards, and with all regulations of the University.

Before registration is considered complete, each student must fill out a cumulative record folder for the Office of the Dean of Students.

Notice of change of name and/or address must be reported to the Registrar's Office immediately after change.

A student may not receive grades, transcripts of records, teaching credentials, or diplomas until all of his University obligations have been met. He may not register at the beginning of any quarter until past obligations have been cleared or officially extended by the Chancellor or the Dean of Students. Failure to comply with University obligations may result in the lapse of his status.

Failure to keep appointments with administrators or University faculty members, whether made through notices in mail boxes, in the student newspaper, or on bulletin boards, will be regarded as a breach of student responsibility, and will subject the student to disciplinary action.

Students wishing to withdraw from a course or from the University should see page 57 for proper procedures.

It is the student's responsibility to secure the consent of the instructor before enrolling in a course with prerequisites which the student has not completed.

RESPONSIBILITY FOR STUDENT WORK

All material of whatever nature submitted by a student in satisfaction of all or any portion of a course requirement is the property of the University and is not subject to any claim on the part of the student who has submitted it.

Further, it is a condition of attendance for any student in any course that any material which he shall produce independently, and not as a part of any course requirement, must be removed by him from University premises not later than the last day of the quarter in which he produced such material; and that if he shall fail to remove it as herein provided, there shall be no obligation on the part of the University to hold or safeguard it and all risks of its destruction, loss, or other disposition shall rest solely upon the student.

AUTHORITY OF INSTRUCTORS

No student may enter upon any organized instructional activity until he has registered and his enrollment has been approved by the appropriate study list authority.

No student will be permitted to enter upon or continue the study of any subject if, in the opinion of the instructor, he lacks the necessary preparation to ensure competent work in the subject.

Chemical Engineering Student Doing Oil Pollution Research

Undergraduate Requirements and Curricula

COLLEGE OF LETTERS AND SCIENCE

The College of Letters and Science is committed to the concept of the educated person, seen as one who is able to both fulfill his own potentialities and deal effectively with his environment. In keeping with these objectives, the College of Letters and Science has developed a program of general education, designed to expose the student to a broad spectrum of human endeavor and accomplishment. This includes an enhanced understanding of one's own language, a working knowledge of a foreign language, an introduction to philosophy, literature, and the fine arts, a comprehension of the basic principles of history and the social sciences, and an acquaintance with the biological and physical sciences. The student is therefore required to enroll in a number of courses covering a variety of fields.

The courses so indicated may be taken at the University of California or elsewhere. The list of courses and their descriptions may be used by prospective transfer students as a guide in selecting courses of similar content and purpose offered in their own institutions. Students attending a California junior college should consult their counselors to determine which junior college courses are appropriate and are accepted in satisfaction of the breadth requirements by the college or the University in which they plan to enroll.

Students who have completed at least 40 units in a non-professional college on another campus of the University prior to transfer to the Santa Barbara campus may petition to substitute the breadth requirements of that college, provided that those requirements are considered parallel, for the general education requirements of the College of Letters and Science.

The Scholars Program of the College of Letters and Science is now entering its sixth year, offering students of exceptional promise a more meaningful collegiate experience through closer association with the faculty, with counselors and fellow students.

Scholars are chosen to participate by criteria established by a council of eight faculty members and the Program's director. They are selected on the basis of aptitude and personality tests, interviews with the counselors, and upon the recommendation of faculty members.

The Program offers the Scholars a small college atmosphere within the larger structure of the University, counseling services, encouragement to undertake special projects in their fields of interest, and access to a lounge for social gatherings and intellectual pursuits.

FRESHMAN PROGRAMS

In accordance with recommendations sent out by the departments offering majors and by the Faculty of the College of Letters and Science, entering freshmen are expected to take courses in English, foreign language (if continuing a language started in high school), and one or more courses selected from the humanities, and the biological, physical, and social sciences. It is not required that students take both science and foreign language their first quarter.

Any student who expects eventually to obtain a teaching credential should consult with advisers in the office of the Department of Education as early as possible in his college career. See the section concerning the Department of Education for requirements for the credential programs and supervised teaching.

Students planning to enter the College of Engineering should consult the Dean of the College of Engineering during pre-enrollment counseling.

Each entering student who has satisfied the Subject A requirement must enroll in English 1A or 1B, whichever is appropriate and complete the courses in succeeding terms. *No deferral of English 1A* or *1B is permitted.* No other English courses may be taken until English 1A and 1B have been completed.

MAJOR FIELDS OF STUDY

The following majors are available in the College of Letters and Science: anthropology, African area studies, art, Asian studies, biology, Black studies, botany, chemistry, classical civilization, classics, comparative literature, dance, dramatic art, economics, English, environmental studies, French, geography, geology, Germanic languages and literatures, Greek, Hispanic civilization, history, Italian, Latin, linguistics, mathematics, middle eastern studies, music, philosophy, physical education, physics, political science, psychology, religious studies, Russian area studies, Slavic languages and literatures, social science, sociology, Spanish, speech, tutorial and zoology.

In addition to the above listed departmental and interdepartmental majors, a student with an unusual but clearly academic interest, for which no suitable major, field of concentration, or curriculum is offered in the University of California, may plan his own *individual major.* The proposal for the individual major must be presented as early as possible, but no later than the end of the junior year. In such cases the student must (1) have completed three quarters' (at least 36 units) work with a grade point average of 3.25 or higher, (2) have the approval of the Executive Committee of the College of Letters and Science and the Dean, and (3) be assisted and supervised by an adviser appointed by the Dean. While transfer students are not excluded from this option, they should note that grades earned at other colleges may not be used as a basis for qualification.

The student should choose his major field of study with great care. Personal preference, individual qualifications, and future ambitions should be carefully weighed. It should be kept in mind that a change of major after entering the upper division is likely to prove costly in both units and time, and that no student is permitted to change his major, except in closely related fields, after the beginning of the first quarter of his senior year.

THE UNDECLARED MAJOR

Unless the entering student is quite certain about his professional or vocational goals, he is strongly advised to enroll as an Undeclared major. However, students whose interests lie in the sciences or in engineering must begin these programs immediately if they are to make normal progress toward satisfaction of all requirements.

Undeclared majors, *upon request,* may be assigned advisers by the College of Letters and Science until such time as a definite choice of an academic major is made. It is not possible to be graduated as an Undeclared major, and the student must choose a degree program not later than the junior year.

DEPARTMENTAL AND FACULTY ADVISERS

After assignment to a department, each student will be referred to a member of the faculty who will serve as his faculty adviser. Undeclared majors who are also participants in the Scholars Program are advised by that Program's counselor. It is important for the student to keep in close touch with his adviser on all academic matters, including choice of courses, consideration of a major, and requirements for graduation. Appointments should be observed punctually, and it is always useful to consult this catalog on any matter before going to the adviser for counsel.

GENERAL EDUCATION PROGRAM

All students enrolling for the Bachelor's degree in the College of Letters and Science must meet the general education requirements outlined in this section with the following exception. Transfer students may, if they desire, fulfill the general education program that was in effect here at the time they were freshmen, or which was in effect three years previous to their enrollment here, whichever is the more recent. General education requirements for students enrolled in the College of Engineering are outlined on page 73. For the requirements of the College of Creative Studies see page 70.

After a quarter's residence at UCSB, but prior to the completion of 84 units, a student of exceptional ability and performance who wishes to achieve the same objectives by courses better suited to his needs and attainments is invited to propose his own general education curriculum in consultation with his faculty adviser. If the adviser agrees to sponsor this program, he will submit it to the Dean of his College for approval.

CREDIT BY ADVANCED PLACEMENT TESTS

Students may fulfill a part of the breadth requirements in the College by credit allowed at the time of admission for College Entrance Examination Board Advanced Placement Tests with scores of 5, 4, or 3. Advanced Placement Test credit will fulfill breadth requirements in the College of Letters and Science as follows:

Test	*Breadth Requirement Credit Allowed for Test*
English	For a freshman entering the University, a test grade of 4 or above will be accepted in place of English 1A and 1B for the reading and composition requirement and a grade of 3 will be accepted in place of English 1A. No further credit will be allowed for English 1A completed subsequently.
Foreign Language	Fulfills the Foreign Language breadth requirement (General Education Curriculum).
Biology	Fulfills requirement 5*a* (Biological Science) and either 5*c* or 1 course in 6. No further credit will be allowed for Botany 20 or Biology 20, 20Z or Natural Science 1C completed subsequently.
Physics	Fulfills requirement 5*b* (Physical Science) and either 5*c* or 1 course in 6. No further credit will be allowed for Physics 10 or Natural Science 1A completed subsequently.
Chemistry	Fulfills requirement 5*b* (Physical Science) and either 5*c* or 1 course in 6. No further credit will be allowed for Chemistry 25 or Natural Science 1B completed subsequently.
Mathematics	Fulfills requirement 5*c* and 1 course in 6. No further credit will be allowed for a beginning course in analytic geometry and calculus.
History	Fulfills requirements 4*a*, and 4*c* or 1 course in 6. Credit for American History will satisfy the American History and Institutions requirement.

*General Education—Bachelor of Arts

Minimum

1. English 1A, 1B . . . . 8 units
   Each entering student who has satisfied the Subject A requirement must enroll in English 1A, or, if English 1A has been completed, in English 1B, and complete the courses in succeeding terms. *No deferral of English 1A or 1B is permitted.* No other English courses may be taken until English 1A and 1B have been completed. The Subject A course, if required, must be taken at the University of California.
2. Foreign Language . . . . 20 units
   Students in the College of Letters and Science (except those noted below*) are required to complete quarter courses 5 (or the equivalent) in *one* foreign language or to demonstrate commensurate proficiency in one of the following ways:
   1. Taking the Foreign Language Placement Examination on this campus and placing into quarter course *6* (or equivalent). See below for details.
   2. Earning a score of 600 or higher on the Foreign Language Achievement Test administered by the Educational Testing Service. (Scores must be submitted to the Admissions Office.)
   3. Earning a score of 3, or above, on the CEEB Advanced Placement Foreign Language Test administered by the Educational Testing Service. (Scores must be submitted to the Admissions Office.)
   4. Presenting transcripts of record from another college in which an equivalent course has been completed with a passing grade. Equivalency will be determined by the Admissions Office or by the College of Letters and Science in consultation with the appropriate foreign language department on this campus.

Foreign Language Placement Examination

Students who wish to continue study of or who need to validate a language taken in high school must take the Foreign Language Placement Examination, and are advised to do so immediately upon entrance to UCSB. Any delay will lower the student's proficiency and will consequently increase the number of quarters of language study required to reach the sixth course level. The score in the Foreign Language Placement Examination will indicate the student's competency in the given language and will determine how many additional quarters of language he must complete (if any), to satisfy the Foreign Language requirement. The tests in French, German, Greek, Latin, Russian, and Spanish are scheduled at the beginning of each term and are announced in the *Schedule of Classes* for the term.

Students should consult the appropriate department regarding placement examinations in other languages. The Placement Examination may not be repeated.

Students who have taken the College Entrance Examination Board Achievement Test in Foreign Language, and whose scores have been submitted to the Admissions Office, are not required to take the Placement Examination. They may enroll in appropriate courses as determined by their Achievement Test Scores, as follows:

CEEB Achievement Score	*Foreign Language Placement*
0–399	Quarter course 1
400–450	Quarter course 2

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* Students pursuing a Bachelor of Science degree need only complete or validate by placement examination quarter course 3. *All students should consult departmental requirements to determine if there are special language requirements for their majors.*

CEEB Achievement Score	*Foreign Language Placement*
451–499	Quarter course 3
500–549	Quarter course 4
550–599	Quarter course 5
600–699	Quarter course 6
700–	See 5 years High School Study in chart below

Transfer students need not take the Placement Examination to validate high school language study, but they are encouraged to do so if they plan to continue study at the University of the same language for which they have credit at entrance.

The equivalency between the number of years of high school language studied and University courses is as follows:

No. Years High School Study in 1 language:	University Course Equivalent:	Normal Placement on Examination
1	0	1
2	1	2
3	1, 2, 3	4
4	1, 2, 3, 4, 5	6
5	1, 2, 3, 4, 5, 6	French 26 or Spanish 25A or German 101A or Italian 101A

Many students find that their performance on the Placement Examination varies somewhat from these theoretical standards. Consequently, while pre-enrollment in language courses may be based upon the above outline, final registration should be determined by the results of the Placement Examination, and, if necessary, by the advice of the appropriate language department.

Regardless of their scores on the Placement Examination, students in the College of Letters and Science will receive full unit credit for all language courses taken except that **students who have completed two or more years of one language in high school will receive no credit for University language course 1.** Students who place into quarter course 6 on the Placement Examination have satisfied the language requirement regardless of the number of years of high school language completed. Full transfer credit will be allowed for units earned in completion of foreign language courses taken at other colleges or universities even if they duplicate high school courses completed.

All students in the College of Letters and Science are strongly encouraged to meet the Foreign Language requirement as early as possible since any delay in completion of the requirement may delay graduation.

3. Humanities ....15–21 units

a. Literature (4 units)

Students may complete this requirement with a 4 unit (upper or lower division) literature course taught in English or in a foreign language or in English translation in one of the following departments:

Black Studies 129 or 130, Chicano Studies 190, Classics, Comparative Literature, Eastern Languages, English, French and Italian, Germanic and Slavic Languages and Literatures, or Spanish and Portuguese.

Courses such as creative writing or grammar and composition (even those with an "L" suffix) will *not* satisfy this requirement.

b. Philosophy 1 or 5 or 20A–B–C (4–12 units)
If 20A–B–C is chosen, the entire series must be completed to satisfy the General Education requirement in Philosophy.

c. Fine Arts, History and Appreciation (7–8 units)
Two courses chosen from the following list:
Art 1 *or* 150
Black Studies 140
Dance 45
Dramatic Art 45, 160A, 160B, 160C, 160D
Music 15, 16, 17, 113 through 119
Courses may be from one or two areas, except that no credit will be granted for completion of both Art 1 and 150.

4. History, Social Sciences, Psychology . . . . 13–16 units

a. History (3–4 units)
Any course.

b. 2 courses in separate areas from the following: (7–8 units)
Anthropology 2 or 101
Economics—Any course except Accounting or Statistics
Environmental Studies 3, 4
Linguistics—Any course
Political Science—Any course
Psychology 1 or 101
Sociology 1 or 101

c. One additional course from any of the following: (3–4 units)
Anthropology—Any course except 5, 105, 150, 151, 152
Black Studies 1A, 1B, 1C, 101, 102, 104, 105, 110, 120, 128, 150, 160A–B–C
Chicano Studies 1A, 1B, 1C, 105, 170
Economics—Any course except Accounting or Statistics
Environmental Studies 3, 4
Geography—Any course except Physical (see requirement 5c for Physical Geography courses) or Methods courses.
History—Any course
Linguistics—Any course
Political Science—Any course
Psychology—Any course except physiological psychology
Sociology—Any course

5. Natural Science and Mathematics . . . . 11–13 units

This requirement may be satisfied by completion of one of the following two options:

(1) Natural Science 1A–B–C (12 units). A three quarter survey course presenting the concepts of the Natural Sciences for non-science majors. Course 1A is prerequisite to course 1B, which is prerequisite to course 1C. General Education credit will be granted only if all three courses are completed.

(2) 3 courses (11–12 units), including one laboratory course, and including one course each from a, b and c below:

(a) Biology 20 or 20Z, or Botany 20, or Environmental Studies 2

(b) Chemistry, Geology or Physics—any course of 3 or more units—or Environmental Studies 1 or Astronomy 1

(c) One course (3–4 units) from: Anthropology 5, 105, 150, 151, 152, Astronomy 1, Biology—any course except 20, 20Z, 100, or 180, Botany—any course except 20, Chemistry—any course, Environmental Studies 1, 2, 5, 6, Geography 3A, 3B, 4, 111, 113, 115A, 115B, 131A, 131B, Geology—any course, Mathematics—any course except 100A–B–C, Physics—any course except Y, Psychology 113A, 113B, 113L, Zoology—any course.

6. Electives . . . . 12–16 units
   4 courses outside the major chosen from acceptable General Education courses listed above, and/or including Speech 11 or 101 or 180, or any course in Religious Studies. Three units (6 courses) of ½ unit Physical Activities will be accepted in satisfaction of one of the 4 courses required. (*No more than 6 units of ½ unit Physical Activities may be counted toward the 180 units required for the degree.*)

Courses offered in satisfaction of General Education requirements may be taken on a Passed/Not Passed basis provide that they are not also required in preparation for the student's major.

GENERAL EDUCATION REQUIREMENTS

Bachelor of Science—Chemistry and Physics

Minimum

1. English, Reading and Composition, 1A, 1B . . . . 8 units
2. Foreign Language (through quarter course 3. See major requirements for specific language.) . . . . 12 units

   Humanities and Social Sciences . . . . 31 units
   A total of 31 units is required from
   categories 3 and 4 below. (Approximately
   one-half, but at least 11 units, from each.)
3. Humanities:
   - Literature: English or Foreign (See area 3a in B.A. requirements for acceptable courses.)
   - Philosophy 1 or 5 or 20ABC
   - Art 1 or 150
   - Black Studies 140
   - Dance 45
   - Dramatic Art 45, 160ABCD
   - Music 15, 16, 17, 113 through 119
   - Speech 11, 101, 180
   - Religious Studies (any course)
4. History, Social Sciences, Psychology:
   - Anthropology (except 5, 105, 150, 151, or 152)
   - Black Studies 1A, 1B, 1C, 101, 102, 104, 105, 110, 120, 128, 150, 160A, 160B, 160C
   - Chicano Studies 1A, 1B, 1C, 105, 170
   - Economics (except Accounting or Statistics)
   - Environmental Studies 3, 4
   - Geography (except Physical. See area 5c in B.A. requirements for a list of physical geography courses.)
   - History
   - Linguistics
   - Political Science
   - Psychology
   - Sociology
5. Natural Science and Mathematics:
   The Natural Science and Mathematics requirement is satisfied by courses required in preparation for the major. See major requirements for specific courses.

GENERAL REQUIREMENTS

These are general requirements for all students. Students are advised that the major department may impose additional requirements for work in the various majors.

Unit and Grade-Point Requirements

A minimum of 180 quarter units is required for graduation with a Bachelor of Arts or a Bachelor of Science degree. Also, a student's record must show twice as many grade points as there are units in the total credit value of all courses he has undertaken in the University of California. Moreover, *the student must maintain at least a C average in the field of study which constitutes a major or a minor*, both lower division and upper division, inside or outside the department, and at least a C average in the upper division work taken in the major.

The attention of transfer students is directed to the fact that this minimum average must be maintained in the courses undertaken in the University of California. Half of the minimum number of units required for graduation will normally be completed in lower division status.

The Letters and Science List of Courses

One hundred sixty-two of the one hundred eighty units required for graduation with a Bachelor of Arts degree must be in courses chosen from the Letters and Science List of Courses. The 60 units in upper division courses required for the B.A. degree must be selected from the same list. The courses required or accepted as part of a major program within the College of Letters and Science, but which are not on the List of Courses, may be treated as though they were on the List, for that major only. The general education requirements must be satisfied by courses from the Letters and Science List, with the exception of the 3 units of Physical Activities which may apply toward satisfaction of the area 6 Elective requirement. In any case, no more than 6 units of such Physical Activities courses may apply toward the degree.

The Letters and Science List of Courses includes all undergraduate courses listed in this catalog except: Creative Studies, all courses; Education, all courses; Engineering, all courses except ME 152A, 152B, EE5, 105, 165A, 165B, 165C, which are Letters and Science; Health, all courses except 101, 108; Military Science, all courses; Physical Activities, all courses; English 106G; Mathematics 100 A–B–C; and any other courses designed primarily for credentials.

Distribution of Units

The major is usually limited to 60 (36–48 upper division units) units. In addition to his major the student will complete the Program in General Education (page 64) and will normally be able to choose certain elective courses to complete his required total number of units.

COLLEGE OF CREATIVE STUDIES

The name is intended to suggest the nature and distinctiveness of the College. The College of Creative Studies is a separate academic unit, separately staffed and administered, with a special curriculum and a specially selected group of students. Each student is enrolled on the evidence of a capacity for independent, concentrated, and sustained work in one or more of the fields of study proposed by the College. Each course in the College curriculum offers the student, not an exposure to a predetermined quantity of fixed subject matter, but an occasion for exploring and modifying a field of knowledge.

Admission and Transfer

Candidates for the College must meet the entrance requirements of the University of California. In addition, each candidate will submit for consideration specific work in evidence of his ability. The Selection Committee of the College will base its decisions on the work submitted, and on interviews with those candidates whose work it has judged favorably.

Each student may at any time apply for transfer into another academic unit of the University, with appropriate credit granted to his standing and achievement in the College. Any student enrolled in any other academic unit of the University, or in any college or university external to the University of California, may apply for admission to the College; if accepted, he will be enrolled in the equivalent College class.

It will be the responsibility of the student's adviser, or of any of his other instructors, to decide whether at any time there is sufficient evidence to warrant reconsidering the student's continuance in the College.

Organization

Majors: Art (Painting or Sculpture), Biology, Chemistry, Literature, Mathematics, Music Theory and Composition, and Physics.

Curriculum and Requirements

There are no specific required courses, but the student's program must be approved and signed by his adviser prior to filing with the Registrar's Office. Each student is permitted to enroll for credit in courses offered by other colleges on the Santa Barbara campus.

Enrollment in any College course requires the consent of the instructor. Courses in the College are not classified as lower-division or upper-division; nor are there prerequisites, other than the instructor's consent, for any course. (Laboratory science and lower-division foreign language courses are taken, when necessary, in the appropriate departments of the College of Letters and Science.)

Though there are no specific required courses, each student is required, during his progress toward the degree, to take a minimum of two courses in each of six curricular areas: (1) Art; (2) Life Sciences (including Psychology); (3) Literature; (4) Music (including Dance and Drama); (5) Physical Sciences and Mathematics; (6) Social Sciences (including Anthropology) and Philosophy. (It will be noted that these areas are not all represented in the College of Creative Studies.) Courses fulfilling the area requirements may be taken either in the College of Creative Studies or in the departments of the College of Letters and Science.

Grading

There are no letter grades in the College. The grading system is a combination of Pass-Not Pass and variable unit credit. For each course in the College the student may receive any number of units from 0 to 6: 0 is Not Pass, any number from 1 to 6 is Pass. A student may plan to do only 3 (or 1 or 2 or 4) units of work for the course by arrangement with the instructor; but in every case the instructor reserves the right to make the final determination of the unit value of the student's work in the course. Each unit of credit is counted toward graduation. 180 units of credit (under the quarter system) qualifies the student for graduation, and the degree of Bachelor of Arts in the College of Creative Studies of the University of California, Santa Barbara.

Students will be taking a considerable proportion of their courses in the departments of the College of Letters and Science. Each course taken and passed in a department of the College of Letters and Science will be credited toward the student's graduation in the amount of the fixed number of units assigned to the course. Each student is required to maintain a 2.0 grade-point average in courses taken outside the College of Creative Studies.

COLLEGE OF ENGINEERING

In general a minimum of four years will be necessary to complete the requirements for the Bachelor of Science Degree in Engineering. In some cases more time may be needed to complete the requirements specified in the curriculum. Completion of the four-year program should provide adequate background for the student to start his professional career or to enter graduate programs in engineering.

The Program of Depth requirements of the College of Engineering at UCSB are designed to provide for (1) the development of an understanding of the relationships between the basic principles of physics, mechanics and mathematics, and the fundamentals of the more advanced electrical engineering science, (2) a rigorous discipline in methods of analysis, involving the application of the foregoing sciences to the analysis and solution of engineering problems, (3) an introduction to fields of study outside of engineering to round out the intellectual development of the student.[**]

[***] It should be noted that these breadth requirements consist of a certain number of units and courses covering a variety of fields. The courses so indicated may be taken at the University of California or elsewhere. The list of courses and their descriptions may be used by prospective transfer students as a guide in selecting courses of similar content and purpose offered in their own institutions. Students attending a California junior college should consult their counselors to determine which junior college courses are appropriate and are accepted in satisfaction of the breadth requirements by the college of the University in which they plan to enroll.

The curriculum in engineering offers a PROGRAM OF DEPTH which is developed through the engineering courses of the major (see courses listed under Curricula and Courses outlined in Engineering Bulletin), and a PROGRAM OF DISTRIBUTION which is attained through required courses of General Education.

CREDIT BY ADVANCED PLACEMENT TESTS

Students may fulfill some of the requirements in the College of Engineering by credit allowed at the time of admission for College Entrance Examination Board Advanced Placement Tests with scores of 5, 4, or 3 as follows:

Test	*Credit Allowed for Test*
English	For a freshman entering the University, a test grade of 4 or above will be accepted in place of English 1A, 1B for the reading and composition requirement. A grade of 3 will be accepted in place of English 1A, and the Subject A requirement will be considered satisfied.
Chemistry	Credit will be given for Chemistry 1A.
Mathematics	Students who have Calculus Advanced Placement Tests scores of 5 or 4 should enroll in Mathematics 4A. Those with a score of 3 should enroll in Mathematics 3C.
History	Credit will be given for two history courses toward satisfaction of the General Education requirement. If Advanced Placement credit is given for U. S. History, it will also satisfy the American History and Institutions requirement.

[**] These requirements are obtained through the courses of the major of the individual engineering departments.

[***] The Program of Distribution—This program is attained through the breadth courses of General Education.

GENERAL EDUCATION

The Program of Distribution (General Education) as now required of all engineering students is as follows:

		Units
English 1A–1B[*]		8
Free Electives		12
Humanities History, Social Science, Psychology } in approximately equal portions		31
Mathematics, Science		39
(a) Math	18	
(b) Physics	9	
(c) Chemistry	12	—
TOTAL		90

UNIT AND GRADE-POINT REQUIREMENTS

A minimum of 180 quarter units is required for graduation with a Bachelor of Science degree. A student's record must show twice as many grade points as there are units in the total credit value of all courses he has undertaken in the University of California. Moreover, *the student must maintain at least a C average in the field of study which constitutes a major or a minor,* and at least a C average in the upper division work taken in the major.

The attention of transfer students is directed to the fact that this minimum average must be maintained in the courses undertaken in the University of California. Half of the minimum number of units required for graduation will normally be completed in lower division status.

ADMISSION AS A FRESHMAN

The requirements for freshman admission include satisfaction of the general requirements for admission to the University.

To satisfy the *general requirements for admission to the University*, marks must average at least B grade in the following courses taken in tenth, eleventh, and twelfth grades: United States history, English, mathematics, science (with laboratory), foreign language.

Many patterns of high school subjects will satisfy these requirements. A pattern such as the following, which includes: algebra[†], 2 units; plane geometry[†], 1 unit; trigonometry[†], ½ unit; and physics or chemistry (preferably both), 1 or 2 units; is strongly recommended for students who plan to study engineering at the University of California.

	High School Units
English	3
United States history	1
Algebra	2
Plane geometry	1
Trigonometry	½
Physics or chemistry (preferably both)	1
Foreign language	2
Other college preparatory subjects	3½
	14

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[*] Speech 1 or Speech 11 may be substituted for English 1A or 1B.

[†] Or equivalent integrated courses, covering this same subject material, acceptable to the University's Office of Admissions.

These subjects are prerequisite to the regular courses in the freshman engineering program and the student who is admitted without one or more of them will be obliged to defer the courses to which they are prerequisite, and thereby will become irregular and probably will be delayed in advancement to upper division status and in graduation.

Since engineering laboratory courses and engineering practice require dexterity in the use of measuring instruments, and in the operation and testing of machines and equipment, prospective students are advised to elect shop courses in high school, preferably machine shop, for at least one semester. Other skills, such as typing, are very desirable.

Professional engineering requires much oral and written communication. High school courses in English composition and public speaking contribute greatly to the foundation for college study of engineering.

Admission to the lower division of the College of Engineering does not necessarily imply advancement to the upper division at some later time. Advancement to the upper division is contingent upon the achievement of a satisfactory scholarship record in lower division courses.

ADMISSION AS A JUNIOR

Admission to the upper division of the College of Engineering will be to the particular curriculum selected by the applicant, such as electrical, mechanical, or chemical and nuclear engineering.

A sizable fraction of the University's upper division engineering students enter at the junior level from junior colleges or other institutions. Applicants for junior status from all sources, including applicants from the University's lower division, are required to meet the same minimum standard. The following requirements, which are precisely equivalent to those imposed upon continuing students, apply to admission of new juniors:

1. Satisfaction of the general requirements for admission to the University at junior level. (See statement on Admission with Advanced Standing.)

2. A satisfactory combined average based on grades in science, mathematics, and engineering subjects undertaken in college.

3. The required grade-point average in a lower division program of not less than 56 semester units or 84 quarter units including partial completion of the General Education Program of the College of Engineering which includes the following minimum subject requirements:

	Minimum Number of Quarter Units
Analytic geometry and calculus	20
Chemistry (for engineering and science students)	12
Physics (for engineering and science students)	12
Engineering (subjects such as graphics, properties of materials, surveying, engineering measurements, statics, electronics, and computers)	15
Humanistic-social studies	9
Unspecified subjects (9 units may be in humanistic-social studies; none may be in Military Science or Physical Education; the remainder may be in additional mathematics, chemistry, physics, and engineering courses)	16
	84

The student admitted on this basis will not be required to take additional lower division courses in Engineering except those which are prerequisite to upper division courses in his curriculum.

The above subject requirements are minimum in Engineering. The University will accept a maximum of 70 semester units of advanced standing credit for college courses completed at a junior college.

AGRICULTURE

Students who wish to major in one of the agricultural sciences and who plan to transfer in advanced standing to the College of Agricultural Sciences, Berkeley; the College of Agriculture, Davis; the School of Agricultural Sciences, Riverside; the School of Forestry, Berkeley; or the School of Veterinary Medicine, Davis, may complete most of the requirements for the first two years of their undergraduate work here.

Students should consult the *General Catalog* of the appropriate campus for detailed requirements in the field of interest.

OPTIONS FOR SPECIAL, INDEPENDENT OR ACCELERATED STUDY

Individual Major

In the College of Letters and Science in addition to the published departmental and interdepartmental majors, a student with an unusual but clearly academic interest, for which no suitable major, field of concentration, or curriculum is offered in the University of California, may plan his own individual major. In such cases the student must (1) present his proposal for an individual major as early as possible, but no later than the end of the junior year, (2) have completed three quarters' (at least 36 units) work with a grade point average of 3.25 or higher, (3) have the approval of the Executive Committee of the College of Letters and Science and the Dean, (4) be assisted and supervised by an adviser appointed by the Dean. While transfer students are not excluded from this option, they should note that grades earned at other colleges may not be used as a basis for application.

Independent Studies 199

Well-prepared students who have completed a minimum of 125 units in the College of Letters and Science or the College of Engineering may, with the approval of their department chairman and academic dean, undertake carefully planned and supervised independent studies courses in their major or minor. These courses are advanced courses in the sense that they extend beyond any of the undergraduate courses in any given field of study and represent the nearest approach to graduate study available to undergraduate students. Students seeking this privilege must be able to demonstrate evidence of an appropriate academic background. No more than 5 total units of 199 may be undertaken in one quarter and no more than 12 units of 199 may be accumulated.

Upper Division Courses

These courses, numbered from 100 to 199, may be taken for upper division credit by lower division students if they meet the subject matter prerequisites. No petition is required.

Credit by Examination

A student registered in the current regular session who by reason of advance preparation believes himself to be adequately grounded in the materials and principles of a given course may petition for credit by examination for any course which may be listed in the current *General Catalog* of the University of California, Santa Barbara, or in any other subject appropriate for inclusion in a University curriculum. If credit is sought in a course not regularly offered at Santa Barbara, the petition must be approved by the Committee on Undergraduate Courses. The student may elect, at the time his petition is initiated, to take the examination on the Passed/Not Passed basis, provided he is eligible for enrollment in a course on that basis during that term. If he passes the examination, he will be awarded full credit for the course and will be assigned the grade he earned in the examination. Failure to pass the examination will be recorded as an F or an NP, whichever is appropriate, in the student's record. Certain courses, by reason of special features of the instruction, such as extensive laboratory work, may not be considered appropriate for obtaining credit by examination. In addition, credit by examination is not available for a course in which the student has completed more advanced work in the same field, nor for an elementary course in a foreign language in which the applicant is a native speaker. All petitions for credit by examination must be approved by the dean of the appropriate college in advance of the date of examination. Ordinarily, credit by examination is limited to 12 units.

Intercampus Visitor Program

This program is being discontinued at the end of the Fall 1971 quarter.

Graduate Division

As a general campus of the University of California, Santa Barbara offers graduate programs leading to the degrees of Master of Arts, Master of Education, Master of Fine Arts, Master of Science, Doctor of Philosophy, and to various teaching credentials.

Applications for graduate standing will be received from graduates of recognized colleges and universities. The basis of selection will be promise of success in the proposed work, as judged largely by the previous college record. The student's undergraduate program must have been of such character as to furnish an adequate foundation for advanced academic study.

INFORMATION CONCERNING GRADUATE STUDY

All persons seeking graduate standing must apply to the office of the Dean of the Graduate Division. Each applicant must file two copies of a formal application and two official transcripts of his record from each college and university he has attended. The deadlines for application for admission and readmission are: August 2, 1971, for the fall quarter; November 1, 1971, for the winter quarter; February 1, 1972, for the spring quarter. The application blanks may be obtained from the Graduate Division, University of California, Santa Barbara, California 93106. The applications and reapplications must be accompanied by a check, money order, or a bank draft for $20 in payment of the application fee. Payment should be made for the exact amount, and checks, drafts, or money orders should be made payable to The Regents of the University of California.

Approval of an application for graduate admission does not constitute a commitment on the part of the University to accept the applicant as a candidate for a degree or to recommend him for a credential. Certain requirements must be met while in graduate standing prior to a student's becoming formally a candidate for a degree or receiving the recommendation for a credential. Moreover, the University reserves the right to withhold or withdraw from any student the privilege of candidacy or of recommendation prior to the completion of requirements for a degree or credential.

A limited number of teaching assistantships are available. More specific information may be obtained from the chairman of the student's major department.

Students admitted to graduate status will normally be enrolled in either or both of two programs: (1) that leading to a graduate degree, and (2) that leading to recommendations for the elementary, secondary, junior college, supervision, restricted speech and hearing, or pupil personnel credentials. Only with good reason a student will be admitted to graduate status without degree or credential objectives and may enroll in those graduate courses to which the Dean, with the concurrence of the instructor, will admit him.

WAIVER OF THE NONRESIDENT TUITION FEE

For information regarding a possible waiver of the nonresident tuition fee, consult the Graduate Division.

FILING FEE

In certain circumstances it is now possible to receive a master's or doctoral degree without paying full fees for the quarter in which the degree is granted. Where the conditions are met, $50.00 may be paid in lieu of registration fees for the filing of a doctoral dissertation, a master's thesis, and/or the formal final examination for the doctor's or the master's degree. This fee will be assessed against each candidate who has completed all other requirements (*including residence*) for the degree and who is no longer in attendance as a student at the University at the time of filing the dissertation or thesis or taking the final examination. The filing fee is the same for residents and nonresidents alike and will be paid after the dissertation or thesis is filed or the final examination passed. The fee is applicable *only* in cases where the student will be making *no* use of any University facility and *no* demands on faculty time other than that required for approving the dissertation or thesis or conducting the final examination (comprehensives or defense of the dissertation).

STUDY-LIST LIMITS

The maximum programs for which graduate students and Teaching Assistants may register are given in the table below. Study lists deviating from these limits must be approved by petition to the Dean of the Graduate Division.

GRADUATE STUDENTS			TEACHING ASSISTANTS*		
			Maximum Program		
Graduate Units	Undergraduate Units	Total Units	Graduate Units	Upper Division Units	Total Units
0	16	16	0	12	12
1	15	16	1	11	12
2	13	15	2	9	11
3	12	15	3	8	11
4	11	15	4	7	11
5	9	14	5	5	10
6	8	14	6	4	10
7	7	14	7	3	10
8	5	13	8	1	9
9	4	13	9	0	9
10	3	13			
11	1	12			
12	0	12			

* Applicable also to Research Assistants.

THE DEGREE OF MASTER OF ARTS

Majors are offered in art history, biology, botany, chemistry, classics, dramatic art, economics, education, English, French, geology, German, history, mathematics, applied mathematics, music, musical performance, physical education, physics, political science, religious studies, sociology, Spanish, speech, and zoology.

Applicants for the Master's Degree

A student may apply for graduate standing to seek the master's degree subject to the following regulations:

1. *Admission and Readmission.* No student may be admitted to the program for the master's degree without the approval of the chairman of his department and the Dean of the Graduate Division.

2. *Preparation.* The student's baccalaureate training must be substantially equivalent, both as to the major and in general education, to that required by the University of California.

3. *Residence.* Students in master's programs will spend three quarters in residence on the Santa Barbara campus; at least one quarter must fall within a regular session and will normally be composed predominantly of course work in the major, exclusive

of thesis work. Waiver of residence requirements will be at the discretion of the Graduate Council.

4. *Program.* The program of every student who is seeking the master's degree must be approved by his department. In Plan I (Thesis) at least 30 units (including no fewer than 12 graduate units) are required. In Plan II (Comprehensive Examination) 36 units (including no fewer than 18 graduate units) are required. Students seeking the master's degree may enroll in courses numbered 198 and 199, but may not utilize them to satisfy the requirements for this degree. Lower division courses are not applied toward an advanced degree. Further information regarding graduate course requirements may be obtained from the chairman of the major department.

5. *Candidacy.* Admission to candidacy is *not automatic.* The student must file the card #8 with his registration packet in the quarter in which he intends to complete requirements for the degree. Further details may be obtained from the Dean of the Graduate Division.

6. *Standards of Scholarship.* Only upper division and graduate courses in which the student is assigned grades A, B, C, or S may be counted in satisfaction of the requirements for the master's degree. Furthermore, the student must maintain *an average* of at least three grade points per unit in those courses during his residence at the University of California as a graduate student.

THE DEGREE OF MASTER OF EDUCATION

A program of graduate study in the Graduate School of Education leads to the award of the Master of Education degree with emphasis in counseling psychology and a state pupil-personnel services credential. See page 172 for details.

THE DEGREE OF MASTER OF FINE ARTS

The Master of Fine Arts degree in studio subjects is offered by the Art Department. See pages 93–94 for details.

THE DEGREE OF MASTER OF SCIENCE

Graduate work leading to the Master of Science degree is offered in the fields of chemical, electrical, and mechanical engineering. Plans for administering the program are based on the following:

1. *Admission and Readmission.* To be admitted to studies leading to the degree of Master of Science in Engineering, the admission requirements of the Graduate Division must be met, subject to the stipulation that the student can be accommodated in the field in which he wishes to study. All applicants will be required to obtain an evaluation of credentials by major field advisers in engineering, for the purpose of certification to the Graduate Dean of the amount of work that may be accepted as advanced or upper division work.

Applicants with undergraduate preparation that is deemed inadequate as a foundation for graduate work in the desired field may be admitted with the provision that any course deficiencies will be made up. Courses so designated will be in addition to the units required for an advanced degree.

2. *Foreign Language.* A reading knowledge of a foreign language is not necessary for graduate work in engineering leading to the master's degree.

3. *Fields of Emphasis.* Graduate emphasis is provided in the areas of (1) automatic controls, (2) microwaves, (3) communications, (4) computer engineering, and (5) solid-state devices, (6) thermal sciences, (7) solid mechanics, (8) fluid mechanics, (9) material

sciences, (10) design, (11) transport processes, (12) chemical reactors, (13) process dynamics and control. Students embarking upon a program leading to the master's degree will be expected to take courses from one or more of these areas.

4. *Degree Requirements.*
Chemical Engineering Plan I or II.
Electrical Engineering Plan II.
Mechanical Engineering Plan I or II.

THE DEGREE OF DOCTOR OF PHILOSOPHY

The Doctor of Philosophy degree is offered in anthropology, art history, biology, chemical engineering, chemistry, dramatic art, economics, education, electrical engineering, English, French, geology, German, history, mathematics, mechanical engineering, music, philosophy, physics, political science, psychology, religious studies, sociology, and Spanish.

Applicants for the Doctor of Philosophy Degree

An applicant for graduate standing to seek the degree of Doctor of Philosophy is subject to the following regulations:

1. *Admission and Readmission.* Admission to graduate standing in the master's degree program does not imply entrance to the doctoral program. A student will be accepted in the doctoral program only with the approval of his department chairman and the Dean of the Graduate Division.

2. *Preparation.* In addition to the requirements for admission to graduate standing (as described above relative to the master's degree), the student's baccalaureate training must have fitted him for significant research in the subject of his specialty. Although the doctorate is a research degree, it is understood that his general education will have been substantially the equivalent of that required by the University of California and that his undergraduate major will largely have prepared him to meet the requirements of the comprehensive examination. If a student is admitted to the doctoral program with deficiencies in any of these requirements, he is expected to remove the deficiencies before advancement to candidacy.

3. *Residence.* Students in doctoral programs will spend six quarters in residence on the Santa Barbara campus; three consecutive quarters of residence must be completed in regular session prior to advancement to candidacy. Waiver of residence requirements will be at the discretion of the Graduate Council.

4. *Program.* The doctorate is a research degree granted upon the recommendation to the Graduate Dean of the student's doctoral committee after he has satisfied all requirements for the degree. It is not granted automatically upon the completion of any list of courses and residence requirements but rather reflects professional excellence as judged by his performance. The specific program by which the student will prepare himself for such performance is determined by his doctoral committee, normally under the chairmanship of his major professor. Each program will be designed to meet the individual needs of the student concerned.

5. *Candidacy.* Advancement to candidacy is earned by passing examinations in one or more modern foreign languages (if required), preliminary departmental examinations, and an oral qualifying examination.

6. *Standards of Scholarship.* The rules of scholarship described above under the master's degree apply also to students in the doctoral program.

For further details the student is referred to the chairman of the department of his major subject and to the *Announcement of the Graduate Division, Santa Barbara.*

CALIFORNIA TEACHING AND PUPIL PERSONNEL SERVICES CREDENTIALS

The Graduate School of Education is authorized by the California State Department of Education to recommend applicants for certain credentials.

The programs offered include standard teaching credentials with specialization in (1) elementary teaching, (2) secondary teaching; standard supervision credential, and the standard designated services credential with specialization in pupil personnel services, as well as for the restricted speech and hearing credential.

Applications to Enter Credential Programs

A student may apply for graduate standing to seek recommendation for a California credential subject to the following regulations:

Admission and Readmission. A student applying for admission to a credential program must be reviewed by the departments of his teaching major and his teaching minor (a minor is optional with an academic major), and the Graduate School of Education. The final decision of acceptability of each applicant is then determined by the Dean of the Graduate Division.

Preparation. The student's baccalaureate training must be substantially the same as that required at Santa Barbara in the field of his teaching major. His undergraduate program must exhibit breadth in general education in such fields as the fine arts, languages and literature, the sciences, psychology, philosophy, and the social sciences. Deficiencies in general education, the major, or the minor must be removed prior to admission to student teaching.

Scholarship. Admission into the elementary, secondary, restricted speech and hearing, supervision, and pupil personnel credential programs are the same as for admission into the master's degree programs. In applying these standards, the Dean of the Graduate Division may give some consideration to high scores attained on the achievement tests of a recognized national testing service.

In some instances a student may display sufficient strength in other aspects of his preparation for becoming a teacher to compensate for a grade point average that is below the foregoing minimum. An applicant who believes he might qualify as such an individual should contact the Education-Advising Office in the Graduate School of Education to discuss the matter.

Every student who has been admitted to either the elementary, secondary, supervision, pupil personnel services, or restricted speech and hearing credential programs must maintain a grade-point average of 3.0 in all upper division and graduate courses. A student who fails to maintain these standards of scholarship is subject to dismissal from the credential program.

Residence. In completing his course work, the candidate must satisfy the three quarter residence requirement. One quarter of study must be completed during the regular academic year.

Ansel Adams

Closed Circuit Televised Instruction

Courses of Instruction
1971–72

Roman Numeral and Letter Designations

The Roman numerals I, II and III and the letters Yr. are placed after the unit value of courses to show when they are usually offered: I, in the fall quarter; II, in the winter quarter; III, in the spring quarter; I, II, III, in all quarters; SS., in summer session; and Yr., continued through the fall, winter, and spring quarters.

Year Courses: Series Numbers

A course designated by a number and a letter in sequence (for example, Math 3A–B–C) is continued through three successive quarters, ordinarily from September to June. Generally the first part of such a course is prerequisite to the second part, etc. A final report is made by the instructor at the end of each quarter. The student may discontinue the course at the end of the first quarter, with final credit for the first part of the course. Course numbers followed by the letter "L" indicate a laboratory course. For example, Physics 124L identifies Radioactivity Laboratory.

Classification and Numbering of Courses

Courses are classified and numbered as follows:

1. Lower division courses are numbered 1–99. In no department is a lower division course acceptable for upper division credit.
2. Upper division courses are numbered 100–199.
3. Graduate courses are numbered 200–299, and are ordinarily open only to students who have completed at least 12 upper division units basic to the subject matter of the course.
4. Professional Courses for teachers are numbered 300–399.
5. Graduate courses for individual study for higher degrees or preparation of dissertations are numbered 500–599.

Special courses in each department numbered 199, and entitled, for example, Independent Studies in Art, Independent Studies in Biological Sciences, are courses which present an opportunity for independent study on the part of well-prepared major and minor students who have completed 125 or more units. No more than 12 quarter units of 199 courses can be credited to a student, and the limit for one quarter is 5 units. Graduate students may enroll in courses 198 and 199 but may *not* utilize them to satisfy the requirements of the degree.

No student, by performing additional work, may receive upper division credit for a lower division course, or graduate credit for an upper division course.

AFRICAN AREA STUDIES

This program to be administered through the Department of Black Studies.

THE MAJOR

The major in African Area Studies is an interdepartmental major which is designed to enable the student to acquire a broad interdisciplinary background in African cultures. The major is designed to serve the interest of those students who seek a general knowledge of Africa and its peoples beyond the more restricted African offerings of individual departments or to provide those students who wish to pursue graduate study with an interdisciplinary foundation in African Studies as preparation for more specialized professional training.

Requirements for the Major

Twenty-four units of one of the following languages: Amharic, Arabic, Yoruba, or Swahili. With the permission of the Committee twenty-four units of French or Portuguese may be substituted for an African language. The language requirement may be satisfied upon demonstration of competence at the required level.

Thirty-six units of Upper Division courses selected from the following:

ANTHROPOLOGY

No. 138—Traditional Cultures of Africa
No. 147—Race Relations
No. 148—Urbanization in Developing Countries
No. 149—Social Change in Modern Africa
No. 151—Fossil Evidence for Human Evolution
No. 165—African Prehistory
No. 172—Colonialism: Social Effects

ART

No. 151F—African Art. Part I. The Western Sudan and West Africa east to Nigeria.
No. 151G—African Art. Part II. Nigeria, east into the Cameroons and south to the Congo.

BLACK STUDIES

No. 105—An Introduction to African Nationalism
No. 115—African Philosophy
No. 130—French African Literature and Literary Figures
No. 160B—White Racism and the African Continent
No. 160C—The African Liberation Movement

GEOGRAPHY

No. 152AB—Africa

HISTORY

No. 148A–B—History of Tropical Africa
No. 149—History of South Africa
No. 169A–B—Afro-American History

POLITICAL SCIENCE

No. 146—The Political Systems of Tropical Africa
No. 147—The Politics of Developing Areas

Requirements for the Minor

African Area Studies may be elected as a minor. The student will be required to acquire twenty-four units of one of the following languages: Amharic, Arabic, Yoruba, or Swahili. With the permission of the Committee twenty-four units of French or Portuguese may be substituted for an African language.

Eighteen units of Upper Division courses selected from those listed above under Required course for the major.

The program is to be made out by each student in cooperation with one of the members of the Committee and will be based primarily upon the needs and objectives of the individual student.

ANTHROPOLOGY

David W. Brokensha, Ph.D., *Professor of Anthropology.*
Charles J. Erasmus, Ph.D., *Professor of Anthropology.*
Brian M. Fagan, Ph.D., *Professor of Anthropology.*
Thomas G. Harding, Ph.D., *Professor of Anthropology (Chairman of the Department).*
William Madsen, Ph.D., *Professor of Anthropology.*
[1]Elman R. Service, Ph.D., *Professor of Anthropology.*
[2,3]Albert C. Spaulding, Ph.D., *Professor of Anthropology.*
Donald E. Brown, Ph.D., *Assistant Professor of Anthropology.*
Elvin J. Hatch, Ph.D., *Assistant Professor of Anthropology.*
James M. B. Keyser, Ph.D., *Assistant Professor of Anthropology.*
M. Kay Martin, Ph.D., *Assistant Professor of Anthropology.*
Mattison Mines, Ph.D., *Assistant Professor of Anthropology.*
Barbara Voorhies, Ph.D., *Assistant Professor of Anthropology.*

◆

Donald A. Symons, M.A., *Acting Assistant Professor of Anthropology.*
Manuel L. Carlos, M.A., *Lecturer in Anthropology.*
Jerome S. Cybulski, M.A., *Lecturer in Anthropology.*
Michael A. Glassow, M.A., *Lecturer in Anthropology.*

THE MAJOR

Anthropology is the study of man in the broadest sense. It concerns itself with the biological, cultural, and historical aspects of mankind. The aim of the anthropology major is threefold: (1) to prepare for graduate school those students desiring to work professionally in anthropology, (2) to prepare students for careers either in secondary education or in social work not requiring graduate study, and (3) to provide a background in behavioral studies for students desiring a broad education in either the biological or the social sciences.

Requirements for the Major

Two emphases are recognized within the anthropology major: cultural anthropology and physical anthropology.

Cultural Emphasis

Preparation for the Major—Required: Anthropology 2 (or 101), 3, 5.

Requirements for the Major—Thirty-six units of upper division anthropology (except 101), 8–12 of which may be in related courses in other departments or subject fields, including the tutorial major (see dept. for acceptable courses).

Physical Emphasis

Preparation for the Major—Required: Anthropology 2 (or 101) 3, 5; Biology 1A–B, Zoology 25, 40.

Requirements for the Major—Thirty-six units of upper division anthropology (except 101), at least 12 of which are in physical anthropology. Eight to 12 units may be in Biological Sciences (see department for acceptable courses).

The Minor

Required: 30 units including Anthropology 2 (or 101), 3 and 5.

Requirements for the Degree of Master of Arts

1. In addition to fulfilling the general requirements for admission to graduate status, the department requires an undergraduate major in anthropology or its equivalent and successful performance on the Graduate Record "Aptitude Test" and the "Advanced Test."
2. A comprehensive examination will be required of all students and will serve as the comprehensive written examination for the Ph.D. degree. A "pass with honors" admits the student to the Ph.D. qualifying examination and automatically awards him an M.A. degree.

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[1] Absent on Leave Fall 1971.
[2] Absent on Leave Winter 1972.
[3] Absent on Leave Spring 1972.

A "pass" recommends him for the M.A. but disqualifies him for further graduate work in anthropology on this campus.

3. Some of the course work may be taken in other departments with the approval of the Graduate Committee.

Requirements for the Degree of Doctor of Philosophy

1. See No. 1 above for departmental admission requirements.
2. After the comprehensive examination (see No. 2 above) is passed with honors the candidate must prepare an acceptable dissertation research proposal in order to qualify for the Ph.D. candidacy.
3. Field work of at least three quarters duration is required before the Ph.D. can be granted. The dissertation normally is based on field research, but this is not a requirement.
4. Experience as a Teaching Assistant in anthropology is required before the Ph.D. can be granted.

TEACHING CREDENTIALS

Either a major or a minor in anthropology may serve as part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. It should be noted that if anthropology is to be used as a major for a standard elementary or secondary teaching credential, none of the 36 units of upper division anthropology may be taken in "related courses in other departments" except as authorized by the California Department of Education. Detailed information is given in *The Graduate School of Education Announcement.*

ANTHROPOLOGY

Lower Division Courses

2. Introductory Cultural Anthropology. (3) I, III. Mr. Madsen

The nature of culture: a survey of the range of cultural phenomena, including material culture, social organization, religion, and other topics.

2H. Introductory Cultural Anthropology. (1) I, II, III.

Following the first lecture of Anthro 2, qualified students may apply for participation in an honors seminar for an additional unit of credit or a total of four units for Anthro 2.

3. Introductory Archaeology. (4) I, II. Mr. Fagan

Basic principles of archaeology; human culture from man's emergence as a culture-bearing animal. Survey of selected archaeological sites in the New and Old Worlds. Autotutorial.

5. Introductory Physical Anthropology. (4) I, II, III. Mr. Symons, Mr. Cybulski

Human evolution: evolutionary thought, origin and antiquity of the primates, fossil man, and living races.

Upper Division Courses

101. General Anthropology. (4) III. The Staff

Major principles and concepts of anthropology; may serve as prerequisite for upper division courses. Not open to students who have had Anthropology 2.

102. Peoples and Cultures of the World. (4) I, II, III. Mr. Keyser

A survey of representative primitive and archaic cultures of the world in evolutionary perspective.

103. World Prehistory. (4) I. Miss Voorhies

Comparison of prehistoric cultural materials from both hemispheres to demonstrate (a) processes of cultural evolution, (b) rates of cultural and human biological evolution, (c) isolation of relevant variables for explaining (a) and (b). Not open to Anthropology majors.

104. Material Development vs. Social Man. (4) I, III. Mr. Erasmus

Primitive "communism," 19th century utopias, and contemporary collectives and communes provide comparative data for analyzing First and Third World hopes for social "progress" in the face of technological development, competitive consumption and limited life space.

104H. Material Development vs. Social Man. (1) I, II. Mr. Erasmus

After Anthropology 104 begins, selected students will be invited to enroll in an honors seminar conducted by the professor. Such students will receive one unit for the honors seminar (104H) in addition to the four units for Anthropology 104.

105. Human Variation. (4) II. Mr. Cybulski

Prerequisite: Anthropology 5, Biology 20 or equivalent.

An examination of traditional race concepts contrasted with an approach to human variation through the analysis of biologically adaptive traits.

106. Currents in Anthropological Thought. (4) I, II, III. Mr. Hatch

The emergence of some of the major systems of thought in 20th century anthropology, with emphasis on the progessive refinement and diversity of the modern culture concept.

***108. Traditional Politican Systems.** (4) II. Mr. Brown

A survey of anthropological contributions to the cross-cultural study of government.

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* Not to be given, 1971–72.

110. Technology and Culture. (4) I.
Mr. Harding

The role of tools and technical knowledge in the evolution of societies. The development and spread of major technological innovations from the Palaeolithic to the Industrial Revolution. The impact of industrial technology on primitive and archaic cultures.

113. Comparative Society. (4) I. Mr. Mines

Prerequisite: Anthropology 2 or consent of instructor.

Comparative study of the structure, development, and function of human society; social, religious, political, and economic institutions.

114. Social Organization. (4) II. Mr. Mines

Prerequisite: for majors only.

Emphasis on various theories of social structure and social organization in cross-cultural perspective; kinship, social stratification, conflict and disorganization.

115. Law and Warfare in Non-Western Societies. (4) II. Mr. Service

The nature of law and warfare in non-Western societies. Analysis of the strategy and tactics of conflict resolution in relation to ecological, economic, and political aspects of life in non-Western societies.

116. Magic, Religion and Witchcraft. (4) II. Mr. Madsen

The concept of the supernatural. Cross-cultural variations in the content and functions of the techniques of supernatural control. The process of missionization and conversion. The impact of modern technology on the belief systems of developing countries.

119. Evolution of Modern Culture. (4) I, III.
Mr. Service

The development of modern corporate nation-states in anthropological perspective.

120A. Primate Behavior. (4) II. Mr. Symons

Prerequisite: Anthro 5.

Survey of social behavior in non-human primates emphasizing field studies. Course will stress function and evolution of behavior.

120B. Primate Behavior. (4) III. Mr. Symons

Prerequisite: Anthro 120A.

Survey of social behavior in non-human primates emphasizing field studies. Course will stress function and evolution of behavior.

125. The Female of the Species. (4) I.
Miss Martin, Miss Voorhies

Prerequisite: Anthro 2 (101) and 5.

Comparison of biological attributes of human and non-human female primates and culturally defined behavior of women in selected primitive and modern societies.

126. Theory and Method in Archaeology. (4) I. Mr. Glassow

Prerequisite: 2, 3 or 103.

A survey of the development of archaeological theory and method, emphasizing the last 30 years and considering the nature of archaeological explanation, methods of analysis and measurement of cultural variability. A consideration of major contemporary archaeological problems and approaches to their solution.

131. North American Indians. (4) II.
Mr. Glassow

The origins, development, and attainments of New World aboriginal cultures north of Mexico.

133AB. Cultural Development in Mesoamerica. (4–4) II, III.
Miss Voorhies

Prerequisite: 133A is prerequisite for 133B: 3 or 103

A continuous two quarter course on the prehistory of Mesoamerica with emphasis on the development of aboriginal Mexican and Central American civilizations.

134. Modern Cultures of Latin America. (4) I, III. Mr. Carlos

Continuities and changes in the contemporary cultures of peasant and urban societies in Mexico, Central, and South America. Examination of cultural institutions and values, social stratification, village and urban life, elites, urbanization and national socio-cultural integration.

135. Modern Mexican Culture. (4) II.
Mr. Carlos

The impact of industrialization, urbanization, technology, and modern communications on Mexican society in the Twentieth Century. Examination of contemporary urban and rural communities, class structure, value orientations, ethnic minorities, and national integration seminar.

136. Peoples and Cultures of the Pacific. (4) III. Mr. Harding

The aboriginal and modern cultures of Polynesia, Melanesia, and Micronesia.

138. Traditional Cultures of Africa. (4) I, III.
Miss Martin

A general survey of traditional African cultures.

***140. Peoples & Cultures of the Middle East.** (4) I. Mr. Keyser

Study of contemporary Turkey, Iran, Syria, Lebanon, Iraq, Jordan, Saudi Arabia, and Egypt. Emphasis will be on local problems in development. Major source material and topics will center on, but will not be strictly confined to, the anthropological literature.

142. Peoples and Cultures of India. (4) I, III. Mr. Mines

Rise of Indian civilization from prehistoric times to the present; regional divisions of India; family, kin, caste groups, and village life; social organization above village level; effects of urbanization, British rule and independence.

144. Peoples and Cultures of Southeast Asia. (4) I, II. Mr. Brown

Survey of societies and cultures of Burma, Thailand, Laos, Cambodia, Vietnam, Malaysia, Singapore, Brunei, Indonesia and the Philippines, with emphasis on traditional and modern social structures.

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* Not to be given, 1971–72.

145. Far Eastern Societies. (4) I, III. The Staff

The kinship, economic, political, and religious aspects of social organization in the recent traditional and modern societies of China, Japan, Korea, and Tibet.

147. Race Relations. (4) II. (alternate years with 148) Mr. Brokensha

Main emphasis on South Africa; social, political, legal, economic, religious, and philosophical aspects of *apartheid*. Comparative references to other African countries. USA, Caribbean, and Britain.

148. Urbanization in Developing Countries. (4) II (alternate years with 147). Mr. Brokensha

Growth of cities, patterns of migration, social effects of urbanization on rural and urban areas; comparative aspects. Emphasis on sub-Saharan Africa.

149. Social Change in Modern Africa. (4) III. Mr. Brokensha

The social economic, political and religious institutions in selected societies from English speaking tropical Africa. Emphasis on urbanization, plural societies, directed cultural change, social aspects of development.

150. Advanced Physical Anthropology. (4) III. Mr. Cybulski

Prerequisite: Consent of instructor.

An evaluation of areas of human genetics, population genetics, serology, dermatoglyphics and anthropometry that pertain to current physical anthropology.

151. Fossil Evidence for Human Evolution. (4) II. Mr. Symons, Mr. Cybulski

Prerequisite: Anthro 2, 3, 5 and Biology 20 or 1A–B–C; Geology 3 and Zoology 25 recommended.

Presentation and discussion of the major pieces of the fossil evidence for human evolution. Various interpretations will be discussed in the light of evolutionary theory and with regard to the intellectual climate of opinion prevalent at times of formulation.

152A–B. Human Osteology. (4–4) I, II. Mr. Cybulski

Prerequisites: Anthropology 3, 5 and permission of instructor.

The biology of bones and teeth: application to study of human remains from archaeological sites; morphology, paleopathology, statistical methods. Students are given practical experience in analysis. Course designed for students who intend graduate work in physical anthropology or archaeology.

154. Advanced Social Anthropology. (4) II, III. Miss Martin

A critical review of the major theoretical and methodological contributions by American and British social anthropologists to the study of kinship, economic, legal, religious, and political systems. Course designed for students who intend graduate work in social or behavioral sciences.

155. Social Structure and Historical Process. (4) II. Mr. Brown

Prerequisite: Enrollment with consent of the instructor.

A survey of approaches to the comparative study of socio-political structures and the processes of their maintenance or change. Open to majors in the social sicences and history seminar.

Anthro 156 Military in Developing Societies. (4) I, II. Mr. Keyser

The evolution of warfare in archaic and modern societies; role of the military in developing nations with emphasis on Asia.

160. Cultural Ecology. (4) II. Miss Voorhies

Prerequisite: Anthro 2 or 3

Study and comparison of the various interrelations between pre-literate societies and their total natural and social environments.

163. Archaeology of North America. (4) I. Mr. Spaulding

Prerequisite: Anthropology 3.

A survey of North American archaeology with an emphasis on regional developments as they relate to each other and demonstrate continuity of cultural traditions over long time periods.

164. Old World Archaeology. (4). Mr. Fagan

Prerequisite: Anthropology 3.

A survey of a single aspect of prehistory in the Old World. Normally the course will cover European and Near Eastern Stone Age archaeology.

165. African Prehistory. (4) III. Mr. Fagan

Prerequisite: Anthropology 3.

The prehistoric archaeology of Africa from the earliest times up to A.D. 1500. The emphasis of the course will be on the later Iron Age archaeology of sub-Saharan Africa. Autotutorial.

171. Economics of Primitive and Peasant Societies. (4) II. Mr. Harding, Mr. Mines

Economic life of pre-market societies and the social consequences of their involvement in a money economy.

172. Colonialism: Social Effects. (4) III. The Staff

Study of historical and social processes of colonialism in selected societies; influence on traditional institutions in Africa, Pacific, Asia; legacies in contemporary independent nations.

173. Political Anthropology. (4) II, III. Mr. Carlos

Comparative political institutions and behavior among contemporary peasant societies. Emphasis on Latin America local level politics, and its relationship to national political integration and nation-building.

175A–B. Seminar in History of Ethnology. (4–4) I, II. Mr. Hatch

Prerequisites: Anthropology 2, 106, or consent of instructor.

A study of the history of anthropological theories and schools of thought, emphasizing such early writers as Durkheim, Malinowski, and Boas.

176. Seminar in Contemporary Ethnology. (4) II. The Staff

Discussion seminar based on intensive, critical reading of important anthropological works. Intended as preparation for graduate work; enrollment restricted to majors with a 3.5 GPA minimum.

177. Seminar on Exploration. (4) II. Mr. Erasmus

Prerequisite: Consent of the instructor.

Seminar discussions of articles on religion, peasantry, functionalism and culture change. Students trained to analyze research objectives and explanatory procedures of anthropologists and to write forceful, brief critiques.

178. Seminar on Utopian Societies. (4) II. Mr. Erasmus

Prerequisite: Anthro 104 and consent of the instructor.

Critical examination of futurist and utopian social schemes in the light of cultural evolution and of past and present communal and collective experiments.

181. Methods and Techniques of Field Archaeology. (4) I. Mr. Glassow

Prereq: Anthro 3

Introduction to archaeological research design and field techniques of data collection; including lectures and demonstrations, excavation, and laboratory work on Saturdays.

183. Field Training in Archaeology. (8). SS only Mr. Glassow

Prereq: Anthro 2, 3, or equivalent, plus upper division standing and consent of instructor

Introduction to the planning and implementation of full-scale archaeological projects, with a strong emphasis on the formulation of hypotheses and the collection of data relevant to testing them. Instruction in various forms of data collection, including site reconnaissances, mapping, excavation of structural features, use of aerial photographs, and probabilistic sampling designs.

185. Ethnographic Field Methods. (4) III. The Staff

Introduction to aims and working methods in ethnographic and ethnolinguistic field work, emphasizing practical training in specific procedures for collecting and interpreting observational data.

197. Special Courses. (1–4) I, II, III. The Staff

Prerequisites: Qualified upper division students

Intensive studies or projects, focused on special problems related to Anthropology which are not covered by other courses. Consent of the instructor and the department chairman are required.

198. Senior Honors Readings. (2) Yr. The Staff

May be taken three quarters (from three different staff members). Only students with a 3.5 grade average in anthropology (or special permission) may enroll. Open to students who know their own reading needs and wish to read at least 500 pages per week.

199. Independent Studies in Anthropology. (1–5) Yr. The Staff

May be taken twice (from different staff members). Students must execute a limited research project on their own initiative. Not open to students seeking assigned research topics or to students with less than a 3.5 grade average in anthropology.

Graduate Courses

200. Summer Field School in Archaeology. (8).

Introduction to the planning and implementation of full-scale archaeological projects. The opportunity will be given to formulate and carry out research designs and to direct crews in data collection.

206. Current Problems in Archaeology. (4) III. The Staff

To develop the student's sense of problem and critical faculties. Comprehensive reading lists and discussions.

207. Ecological Perspectives in Archaeology. (4) II. (every other year) The Staff

Prerequisite: Anthropology 160.

Investigation into cultural ecological theory and its application to archaeological problems of explanation.

208. Methods and Techniques of Archaeology. (4) I. Mr. Spaulding

The description, analysis, and interpretation of archaeological data.

***209. Problems in Mesoamerican Archaeology.** (4) III. Miss Voorhies

210. African Prehistory. (4) II. Mr. Fagan

Prerequisite: Anthropology 3.

The prehistoric archaeology of Africa from the earliest times up to A.D. 1500. The emphasis of the course will be on the later Iron Age archaeology of sub-Saharan Africa.

220. Prehistory and Ethnography of Western North America. (4) II. The Staff

Prerequisite: consent of instructor and Anthropology 163.

Seminar. Investigation of selected problems of prehistoric and historic developments in North America west of the Rocky mountains.

230. History of Anthropology. (4) II. Mr. Service

Lectures and discussion of the main problems and currents of anthropological thought from the Enlightenment in Europe through the modern academic phase.

232. Current Problems in Ethnology. (4) II. The Staff

235A–B. Seminar in Political Anthropology. (4) I, II. Mr. Service and Mr. Carlos

A continuous two quarter seminar. 235A is prerequisite for 235B.

237. Anthropology of Development. (4) II. The Staff

An examination of the role of anthropology in the process of development. Theoretical and practical aspects of studies of urbanization, modernization, agriculture, health, education, labor, with emphasis on Africa.

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* Not to be given, 1971–72.

238. Economic Anthropology. (4) II. Mr. Harding, Mr. Mines

A critical examination of the main themes and theories of economic anthropology.

250. Method and Theory in Anthropology. (4) I. The Staff

A discussion of general problems in anthropology.

252. Social Anthropology. (4) II, III. The Staff

A continuous two-quarter seminar. Individual quarters may not be taken separately for credit.

253. Explanation in Anthropology. (4) II. Mr. Erasmus

Seminar discussions of articles on religion, peasantry, functionalism and culture change. Students trained to analyze research objectives and explanatory procedures of anthropologists and to write forceful, brief critiques.

254. Ethnohistory. (4) II, III. The Staff

A continuous two-quarter seminar. Individual quarters may not be taken separately for credit.

Anthro 269 Area Studies in Anthropology (4). Var. The Staff

May be taken for credit as often as available from different professors emphasizing different regional areas.

270A. Problems in African Ethnology. (4) I. Mr. Brokensha

Seminar in selected problems in ethnology of Africa.

270B. Problems in Far Eastern Ethnology. (4) I. The Staff

Seminar in selected problems in ethnology of the Far East.

270C. Problems in Southeast Asian Ethnology. (4) II. Mr. Brown

Seminar in selected problems in ethnology of Southeast Asia.

270D. Problems in South Asian Ethnology. (4) II. Mr. Mines

Seminar in selected problems in ethnology of South Asia.

270E. Problems in Middle Eastern Ethnology. (4) III. Mr. Keyser

Seminar in selected problems in ethnology of the Middle East.

270F. Problems in Oceanic Ethnology. (4) III. Mr. Harding

Seminar in selected problems in ethnology of Oceania.

270G. Problems in Latin American Ethnology. (4) III. The Staff

Seminar in selected problems in ethnology of Latin America.

280. Physical Anthropology. (4) II. The Staff

A continuous two-quarter seminar. Individual quarters may not be taken separately for credit.

281. Current Problems in Physical Anthropology. (4) I. The Staff

To develop student's sense of problem and critical faculties. Comprehensive reading lists and discussions.

282. Physical Anthropology of North American Indians. (4) II. The Staff

Physical variation in indigenous North American populations; methods and theory in analysis; implications for the peopling of the New World. Combined lecture and seminar format.

596. Directed Reading and Research. (2–6) I, II, III. The Staff

Individual tutorial.

597. Individual Study of Master's Comprehensive and Ph.D. (2–6) I, II, III. The Staff

Individual tutorial.

599. Ph.D. Dissertation Preparation. (2–6) I, II, III. The Staff

Individual tutorial.

ART

Kurt Baer, Ph.D., *Professor of Art, Emeritus.*
Catherine C. Campbell, M.A., *Professor of Art, Emeritus.*
[2,3]Mario A. Del Chiaro, Ph.D., F.A.A.R., *Professor of Art.*
William E. Dole, M.A., *Professor of Art (Chairman of Department).*
Henri Dorra, Ph.D., *Professor of Art.*
Howard C. Fenton, M.A., *Professor of Art.*
David S. Gebhard, Ph.D., *Professor of Art (Director of The Art Galleries).*
Jacob Lindberg-Hansen, M.A., *Professor of Art, Emeritus.*
Alfred K. Moir, Ph.D., *Professor of Art.*
Robert C. Thomas, M.F.A., *Professor of Art.*
Howard Warshaw, *Professor of Art.*
Irma Cavat, *Associate Professor of Art.*
Beatrice Farwell, M.A., *Lecturer in Art.*
Peter T. Meller, Ph.D., *Associate Professor of Art.*
Bruce S. McCurdy, M.F.A., *Associate Professor of Art.*
Prudence R. Myer, Ph.D., *Associate Professor of Art.*
Conway Pierson, M.F.A., *Associate Professor of Art.*
William R. Ptaszynski, *Associate Professor of Art.*
William A. Rohrbach, M.A., *Associate Professor of Art.*
Michael A. Arntz, M.A., *Assistant Professor of Art.*
Larry M. Ayres, Ph.D., *Assistant Professor of Art.*
Gary H. Brown, M.F.A., *Assistant Professor of Art.*
Herbert M. Cole, Ph.D., *Assistant Professor of Art.*
Steven M. Cortright, M.A., *Assistant Professor of Art.*
Richard C. Dunlap, M.F.A., *Assistant Professor of Art.*
Michael J. Dvortcsak, M.F.A., *Assistant Professor of Art.*
[4]Sheldon A. Kaganoff, M.F.A., *Assistant Professor of Art.*
David M. Kunzle, Ph.D., *Assistant Professor of Art.*
James D. Smith, M.F.A., Ph.D., *Assistant Professor of Art.*
Miles A. Varner, M.F.A., *Assistant Professor of Art.*

◆

Corlette B. Walker, Ph.D., *Lecturer in Art.*

THE MAJOR

The undergraduate program in the Art Department is not principally professional in direction. It leads to a B.A. degree and includes courses in the history of art and in the studio. It is designed primarily to serve three purposes: to provide the undergraduate with a thorough and comprehensive basic training in art as a humanistic activity; to provide students who wish to become practicing artists with the foundations which will prepare them for graduate work and professional schools; and to offer basic training to students who look forward to graduate training as professional historians of art or critics.

The major in art requires the completion of the general education requirements. ART MAJORS MAY NOT FULFILL GENERAL EDUCATION REQUIREMENT 3C WITH ART COURSES. They must take courses in dance, music, or dramatic art to fulfill this requirement. The major also requires certain basic lower division courses as prerequisites to more advanced work. Within the major, students choose an emphasis in painting, in sculpture, in printmaking, in ceramics, or in the history of art.

All art majors are required to take History 4A–B–C (European History); it is also recommended that they take Philosophy 136 (Aesthetics).

NOTE FOR FUTURE TEACHERS: *Art majors or minors who plan to enter the teaching field at the junior high and senior high levels are encouraged to select a studio emphasis, rather*

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[2] Absent on Leave Winter 1972.
[3] Absent on Leave Spring 1972.
[4] Absent on Leave 1971–72.

than art history. They are further advised to choose a wide range of courses covering as many areas of studios as possible. (See section on Teaching Credentials.)

Discussion sections for art history courses will be held at the discretion of the Instructor.

For further details regarding course offerings, check with Art Department office.

Exceptions to departmental requirements may be made by petition through the Art Department Office.

Requirements for the Major

HISTORY EMPHASIS

Preparation for the Major: Required 23 units in lower division courses: Art I; 2A–B; 2C; 29 and any one of the following: Art 10, 12, 14, 16 or 18. *Studio course may be taken P/NP.*

The Major: Satisfactory completion of 40 units in upper division courses: 152F; 1 course each from: 153 series; 155–156 series; 157–158 series; 159–160 series; 1 course in either 151 or 161 or 181 or 182 or 183 and 16 units of art history electives. (164D and E not acceptable as art history electives).

STUDIO EMPHASIS

Preparation for the Major: Required 32 units in lower division courses; 6 courses from Art 10, 12, 14, 16, 18, 19A or B or C (18 units), Art 30 (6 units) and Art 2A–B, (8 units). *2A–B may be taken P/NP.*

The Major: Satisfactory completion of the following courses: *7 courses from Art 100, 105, 110, 114, 115, or 120 (28 units), Art 190 (4 units), Art 164D–E (8 units) plus 4 units of art history electives (may be either lower or upper division). *Art history course requirements may be taken P/NP.*

*Upper division studio majors must declare an emphasis in painting, sculpture, printmaking, or ceramics. Completion of the emphasis requires 4 courses (including Art 190, B.A. Degree Project) within one of these areas. Courses in these areas will be offered every quarter. In addition, and on an irregular basis, courses in photography (19A), film (19B), and experimental projects (19C) will be offered.

NOTE: *The Art Department recommends that 4 additional units of upper division art history electives be taken by those students with a studio emphasis who plan to enter a graduate school. In Studio Classes, the department requires three hours of work each week for each unit of credit.*

The Minor

History Emphasis: Required-Satisfactory completion of the following 32 units: Art 1, 2A–B; 2C; 29 and any one of the following: Art 10, 12, 14, 16 or 18, plus 8 units of upper division art history electives.

Studio Emphasis: Required-Satisfactory completion of the following 34 units: Art 2A–B (8 units); Art 30 (6 units); 4 lower division art studio courses (12 units); 2 upper division art studio courses (8 units).

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

1. Candidates usually present a bachelor's degree in art with the emphasis in the history of art and with at least a "B" average, and will comply with the requirements listed in the Graduate Division Announcement.

2. A reading knowledge of one, or two at the option of the department, of the following languages must be demonstrated: French, German, Spanish, Italian, Japanese, Chinese, Greek, or Latin. The language or languages selected for examination must be instrumental to the candidate's field of specialization. The examination(s) is ordinarily taken before the end of the first year.

3. The student may opt for the University's Plan I or Plan II.

Plan I: a minimum of 30 units and thesis. At least 16 units must be graduate seminars in art history; of these, at least 8 units must be in two fields outside the student's major field, these fields are: *Primitive, Pre-Columbian, Asian, Ancient, Early Christian and Medieval, Renaissance, Baroque and Rococo, Nineteenth and Twentieth Centuries, Art of the United States, and Architecture.* The remainder must be taken in upper division undergraduate courses and graduate courses approved by the individual and graduate advisers. The student must also present a thesis demonstrating his familiarity with the available literature on his topic and his ability to make a lucid and scholarly presentation.

Plan II: a minimum of 36 units to be approved by the individual and the graduate adviser and a comprehensive examination. At least 18 units must be taken in graduate courses (16 of these units must be graduate seminars in art history; 2–6 units may be taken in reading course 596MC).

The comprehensive examination will require familiarity with the whole range of art history as represented in standard survey texts, a general knowledge of two minor fields, and more detailed knowledge of a major field of specialization. (See list of fields above.) With the approval of the specialist in the field, the student's individual adviser and the graduate adviser a broad major field may be split into two parts, the second portion serving as a minor field.

4. Candidates demonstrating an exceptional ability, such as would be expected of a student continuing for a Ph.D. may be awarded an honors degree.

5. Students under Plan I must have completed their thesis, and students under Plan II passed their comprehensive examination, after being registered for no more than seven quarters and no later than four calendar years after enrolling in the program.

DEGREE OF MASTER OF FINE ARTS

Requirements

1. In addition to fulfilling the general requirements for admission to graduate status, the department requires an undergraduate major in art or its equivalent, with a superior record. The applicant must demonstrate outstanding accomplishment as a student artist. (Submit slides.)

Applications are reviewed by the appropriate faculty members who may select candidates with whom they would wish to work. Admission is contingent upon sponsorship by a faculty member. It is understood that the student will be primarily, but not exclusively, instructed by his sponsor.

2. One of four emphases must be indicated: Painting, Sculpture, Printmaking, or Ceramics. A minimum of 54 quarter units is required, which must include no less than one-half, or 27 units, in graduate courses numbered in the 500 series. As many as 18 units in addition to the required minimum of 54 may be taken in completing the MFA thesis project (course 593MS). Department regulations require that all graduate students do 4.5 hours of work a week for each unit of credit.

3. There will be no foreign language requirement for the degree.

4. Every student in the MFA program will normally be required to take 12 units of art history courses at either the graduate or upper division level.

5. The student's faculty sponsor will serve as chairman of his Study Committee and will assist the student in obtaining the remaining members of the Committee. After completing his first year (approximately 20–30 units) the student will present his work for review by his Committee, which will report to the Department Chairman and Graduate Adviser. This review will determine which beginning students will be eligible for advancement to candidacy.

6. It is the student's responsibility to meet with his Study Committee and with them establish a project in his special area to be completed in his second year in the program.

The project will consist of a group of related works in the student's emphasis. As many as 18 units in addition to the required minimum of 54 may be taken in completing it (but are not required). The project will be presented in the form of a one-man or group exhibition in the Art Department Galleries. It will be accompanied by one copy of a bound booklet containing photographs of the project, preceded by a written statement, the length and content of which will be left to the candidate with the assent of his Study Committee. This booklet will become a permanent part of the Art Department library.

7. It is the responsibility of the Chairman of the student's Study Committee to call meetings of the Committee to supervise the student's work. He must report progress of the student and, finally, the successful completion of these requirements to the Graduate Program Study Committee.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Requirements

1. Candidates for admission to the program must have obtained a Master's degree with honors from U.C.S.B., or show evidence of having met similar requirements at other institutions. Very exceptionally, candidates who have only a Bachelor's degree are admitted.
2. Students from other institutions take an exploratory examination to test their general knowledge during their first quarter of attendance.
3. Students will normally take 36 units of seminars and reading courses (or equivalent) recommended by the student's adviser. Students who have shown weaknesses in their exploratory examination are usually required to take additional courses.

Students are expected to demonstrate their ability to write a long paper of a scholarly nature during the first year of the program. This requirement can be satisfied by submission of their Master's thesis, or a seminar paper, or a paper specially written for this purpose. The paper will be read by the student's adviser and one other faculty member appointed by the Chairman.

4. The student must demonstrate his proficiency in German and French, and, in some fields, in another language related to his major field. Language examinations will be given at the end of the first year.
5. The faculty will review the work of each student at the end of the first calendar year and may recommend his withdrawal.
6. On the recommendation of the student's adviser and the Graduate Adviser, but no later than ten quarters or a maximum of four calendar years after the start of the program (proportionately more if the student is enrolled on a part-time basis), the student applies for advancement to candidacy. At this time he submits an outline of his proposed dissertation and his research program to the Graduate Adviser.
7. The student then takes two examinations:
   a. A written examination on two minor fields, one related to the student's major field, and the other unrelated to it. This examination will be graded by members of the department. It can only be taken twice. Upon passing this examination, the student will be allowed to take:
   b. The oral qualifying examination administered by three members of the department and two members of other departments appointed by the Graduate Council, forming the doctoral committee.
8. The dissertation carried out under the director of the doctoral committee, must be an original contribution to the field of art history. The candidate must defend it orally before the doctoral committee.
9. The dissertation must be submitted no later than five calendar years after advancement to candidacy.

TEACHING CREDENTIALS

Either a major or a minor in art may serve as an appropriate part of the program of studies required for an elementary, secondary, or community college teaching credential in California. Detailed information is given in *The Graduate School of Education Announcement.*

STUDIO ART

ART STUDIO FACULTY

Mr. Gary Brown—*Painting and Drawing*
Mrs. Irma Cavat—*Painting and Drawing*

Mr. William Dole—*Painting and Drawing*
Mr. Richard Dunlap—*Painting and Drawing*
Mr. Michael Dvortcsak—*Painting and Drawing*
Mr. Howard Fenton—*Painting and Drawing*
Mr. William Ptaszynski—*Painting and Drawing*
Mr. William Rohrbach—*Painting and Drawing*
Mr. Howard Warshaw—*Painting and Drawing*

Mr. James Smith—*Art Education*

Mr. Robert Thomas—*Sculpture*
Mr. Miles Varner—*Sculpture*

Mr. Steven Cortright—*Printmaking*
Mr. Bruce McCurdy—*Printmaking*

Mr. Michael Arntz—*Ceramics*
Mr. Sheldon Kaganoff—*Ceramics*
Mr. Conway Pierson—*Ceramics*

Lower Division

Lower Division Art Studio Majors will be required to take six quarters of courses from the Art 10, 12, 14, 16, 18, and 19 series, at three units per course. A course may be repeated (but must be with a different instructor), up to a maximum of two times within a given area. The areas covered will include painting (Art 10), sculpture (Art 12), printmaking (Art 14), ceramics (Art 16), and drawing (Art 18). Courses in these areas will be offered every quarter. In addition, and on an irregular basis, courses in photography (19A), film (19B), and experimental projects (19C) will be offered.

In Studio Classes, the department requires three hours of work each week for each unit of credit.

Upper Division

Upper division Studio Majors will be required to take eight courses (this includes the graduation project, Art 190) of studio work at 4 units per course, with the studio faculty. The Art Department recommends a minimum of three quarters continuous study with a single faculty member.

Upper division students must declare an area of emphasis from Painting, Sculpture, Printmaking or Ceramics. Completion of the emphasis requires a minimum of four courses (including the graduation project) within a given area.

The studio courses may include combinations of subjects and media, and will be defined in a syllabus which will be available to the student through the art department office. In this syllabus, each faculty member will describe how he intends to conduct his class, what kinds of ideas or problems he will cover, what materials he intends to have his students work with, etc. This will be an attempt to clarify the content of each faculty studio course so that students will have a more meaningful basis by which to choose classes.

Lower Division Courses

Courses 10, 12, 14, 16, and 18 may be repeated for credit up to six units, but must be from a different instructor.

10. Lower Division Painting. (3) Year.
Studio Faculty

Designed for Majors and Minors.

Introductory problems in various painting media, such as water color, acrylic, and oils. Fundamentals of color theory and composition. Techniques on various supports, grounds, and paint application.

12. Lower Division Sculpture. (3) Year.
Mr. Thomas, Mr. Varner

Designed for Majors and Minors.

An introduction to sculptural problems and techniques dealing with traditional spatial concepts. Emphasis will be on a variety of sculptural materials used to realize these concepts.

14. Lower Division Printmaking. (3) Year.
Mr. Cortright, Mr. McCurdy

Designed for Majors and Minors.

Recommended preparation: 3 units of Art 18.

Introduction to printmaking; emphasis on technical fundamentals and conceptual aspects of graphic arts. Processes of intaglio and lithographic printing will be emphasized.

16. Lower Division Ceramics. (3) Year.
Mr. Arntz, Mr. Kaganoff, Mr. Pierson

Designed for Majors and Minors.

Introduction to clay as a medium with emphasis on form. Lectures on clays, clay bodies, glazes, and a general survey of ceramics history. Techniques of throwing, handbuilding, glazing, and firing will be covered.

18. Lower Division Drawing. (3) Year.
The Studio Faculty

Designed for Majors and Minors.

Introductory problems in two-dimensional representation with various drawing media, including structural and symbolic implications of the human form. Emphasis on organization of vision and thought in terms of drawing techniques and materials.

***19A. Lower Division Photography.** (3).
The Studio Faculty

Designed for Majors and Minors.

Exploration of photography as a means of artistic expression and showing its relationship to other art media. To be offered on an irregular basis.

***19B. Lower Division Film Techniques.** (3).
The Studio Faculty

Designed for Majors and Minors.

Introduction to various cinematic processes, including film and video-tape. To be offered on an irregular basis.

***19C. Lower Division Experimental Projects.** (3).
The Studio Faculty

Designed for Majors and Minors.

Study and use of new and advanced materials and techniques, including those reflecting contemporary technological developments in science and industry. To be offered on an irregular basis.

***21. Beginning Painting.** (3) The Staff

For non-majors only. Composition in color; various media.

***24. Beginning Drawing.** (3) The Staff

For non-majors only. Drawing in various media including the use of the human figure.

***25. Beginning Ceramics.** (3) Mr. Arntz,
Mr. Kaganoff, Mr. Pierson

For non-majors only. Fundamentals and techniques of ceramics.

30. Studio Concepts. (2) I, II, III.
Studio Faculty

Designed for Majors and Minors.

Analysis of art principles as relative to studio practice and visual perception. Course examines underlying philosophies of artists and broad cultural trends demonstrated in artistic styles. *Must* be repeated for credit up to 6 units, but no more than 2 units per quarter.

Upper Division Courses

The specific concepts, techniques and philosophy of teaching in courses 100 through 120 will vary according to the individual instructor. A syllabus of each instructor's courses will be available in the Art Department Office.

Courses 100, 105, 110 and 115 may be repeated for credit with no cumulative limit.

100. Upper Division Painting and/or Drawing. (4) Year. Studio Faculty

Prerequisite: 3 units of Art 10

Problems emphasizing development of personal expression in painting and drawing; various media. Consideration given to historical painting; trends of contemporary painting, and relationship of drawing to painting.

May be repeated more than once in a quarter, but must be from a different instructor.

B–Brown
C–Cavat
D–Dole
RD–Dunlap
MD–Dvortscak
F–Fenton
P–Ptaszynski
R–Rohrbach
W–Warshaw

105. Upper Division Sculpture. (4) Year.
Mr. Thomas, Mr. Varner

Prerequisite: 3 units of Art 12

First year; more complex spatial problems, working with a limited number of sculptural materials, with emphasis on competency in handling two of these materials. Second year; advanced work in sculptural media; concentration on development of personal sculptural ideas.

May be repeated more than once in a quarter, but must be from a different instructor.

T–Thomas
V–Varner

110. Upper Division Printmaking. (4) Year.
Mr. Cortright, Mr. McCurdy

Prerequisite: 3 units of Art 14

Problems in printmaking including advanced technical processes and color in intaglio and lithographic printing. Emphasis on developing individual competency, both technically and conceptually, through assigned projects and supervised independent study. Drawing as related to graphics will be stressed.

May be repeated more than once in a quarter, but must be from a different instructor.

C–Cortright M–McCurdy

***114. Upper Division Multi-level Lithography.** (4) Mr. Warshaw

Prerequisite: 6 units of Art 18 or consent of instructor.

Offset lithography as a technique for the creation of original graphic works of art. May be repeated for credit up to 12 units.

115. Upper Division Ceramics. (4) Year.
Mr. Arntz, Mr. Kaganoff, Mr. Pierson

Prerequisite: 3 units of Art 16

Investigation at an individual level of raku, low fire, salt, and high fire range. Lectures and problems relating to technical aspects of ceramic chemistry. Personal control of form from clay body, fabrication, glazing, to and including firing.

May be repeated more than once in a quarter, but must be from a different instructor.

A–Arntz K–Kaganoff P–Pierson

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* Yearly schedule varies—check with department.

***120. Upper Division Photography.** (4)
Mr. Ptaszynski, Mr. Rohrbach

Prerequisite: 3 units of Art 19A

Exploring photography as artistic expression and its relationship to other art media. May be repeated for credit up to 12 units. To be offered on an irregular basis.

190. B.A. Degree Project. (4) Year.
Studio Faculty

Prerequisite: Completion of at least 6 U.D. studio courses (24 units)

Advanced study to be taken with consent of a faculty member within area of emphasis, in conjunction with final quarter's U.D. studio course. The project will stress the culmination of the student's development as an undergreduate.

ART HISTORY FACULTY

Mr. Mario Del Chiaro—*Ancient Art*
Mr. Henri Dorra—*19th and 20th Century Art*
Mr. David Gebhard—*Architecture*
Mr. Alfred Moir—*Baroque Art*
Miss Beatrice Farwell—*19th and 20th Century Art*
Mr. Peter Meller—*Renaissance Art*
Miss Prudence R. Myer—*Asian Art*
Mr. Larry Ayres—*Medieval Art*
Mr. Herbert Cole—*African and Oceanic Art*
Mr. David Kunzle—*18th Century Art and Caricature*
Mrs. Corlette B. Walker—*18th and 19th Century Art*

ART

Lower Division Courses

1. Introduction to Art. (4) Year. Miss Farwell
A study of art as a medium of expression.

2A. Art Survey I. (4) I. Mr. Del Chiaro
From the Stone Age to the Renaissance.

2B. Art Survey II. (4) II. Mr. Moir
Prerequisite: Art 2A.
Renaissance through modern art.

2C. Introduction to Asian Art. (4) III.
Miss Myer
The arts of India, China and Japan; stages in their development and relationships between them.

***29. Analysis.** (4) Miss Farwell
The study of artistic form and visual perception as a tool for the art historian's study of style and expression.

Upper Division Courses

***150. The Visual Arts.** (4)
Miss Farwell, Mrs. Walker

Prerequisite: Upper Division standing.

The study of visual art as a means of expression. Not open to art majors, or to students who have taken Art 1.

***151A. Survey: African, Oceanian, and American Indian Art.** (4) Mr. Cole

Prerequisite: Upper Division standing.

An introduction to the art and architecture of Africa, Indonesia, Oceania; of the American Indian, and of the Eskimo.

***151C. Arts of Oceania.** (4) Mr. Cole

Prerequisite: Upper Division standing.

A study of the art and architecture of Indonesia, Melanesia, Micronesia, and Polynesia.

***151D. Art of the North American Indian.** (4) Mr. Cole

Prerequisite: Upper Division standing.

A study of the stylistic forms of the prehistoric and ethnological art of North America; from Alaska to northern Mexico; from ca. 2000 B.C. to the late nineteenth century. The course will cover general as well as specific regional styles, their relationship and pattern.

***151F. African Art—I.** (4) Mr. Cole

Prerequisite: Upper Division standing.

A study of the relationship between art and life south of the Sahara. Part I: The Western Sudan and West Africa east to Nigeria. (Sequence of Part I & II—151F and 151G—preferred but not required.)

***151G. African Art—II.** (4) Mr. Cole

Prerequisite: Upper Division standing and consent of Instructor.

A study of the relationship between art and life south of the Sahara. Part II: Nigeria, east into the Cameroons and south to the Congo. (Sequence of Part I & II—151F and 151G—preferred but not required.)

***152A. Ancient Art: Egypt.** (4)
Mr. Del Chiaro

Prerequisite: Upper Division standing.
Recommended preparation: Art 2A.

The architecture, sculpture and painting of ancient Egypt from prehistoric through Roman times.

***152B. Ancient Art: Mesopotamia and Iran.** (4) Mr. Del Chiaro

Prerequisite: Upper Division standing.
Recommended preparation: Art 2A.

The architecture, sculpture and painting of ancient Mesopotamia and Iran.

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* Yearly schedule varies—check with department.

***152C. Ancient Art: Turkey (Anatolia). (4)** Mr. Del Chiaro
Prerequisite: Upper Division standing.
Recommended preparation: Art 2A.
The architecture, sculpture and painting of Asia Minor (Anatolia) from prehistoric through Roman times; emphasis on the Hittites.

***152D. Ancient Art: Aegean Art (Bronze Age in Greece and the Aegean). (4)** Mr. Del Chiaro
Prerequisite: Upper Division Standing.
Recommended preparation: Art 2A.
The architecture, sculpture and painting of the Greek mainland and the Greek Aegean islands from prehistoric times to the Iron Age, ca. 1100 B.C.

***152E. Ancient Art: Greece I (1100–500 B.C.). (4)** Mr. Del Chiaro
Prerequisite: Upper Division standing.
Recommended preparation: Art 2A.
The architecture, sculpture and painting of ancient Greece from the Iron Age (Geometric Period) to the beginning of the fifth century Classical Period; emphasis on the Archaic Period.

***152F. Ancient Art: Greece II (500–30 B.C.). (4)** Mr. Del Chiaro
Prerequisite: Upper Division standing.
Recommended preparation: Art 2A, 152E.
The architecture, sculpture and painting of ancient Greece from the fifth century Classical Period through the Hellenistic Age to the advent of the Roman Empire.

***152G. Ancient Art: Ancient Italy. (4)** Mr. Del Chiaro
Prerequisite: Upper Division standing.
Recommended preparation: Art 2A.
The architecture, sculpture and painting of ancient Italy from prehistoric times through the Roman Republic; emphasis on the Etruscans.

***152H. Ancient Art: The Roman Empire. (4)** Mr. Del Chiaro
Prerequisite: Upper Division standing.
Recommended preparation: Art 2A, 152G.
The architecture, sculpture and painting of the Roman Empire from 30 B.C. to the beginning of the Christian Era, ca. A.D. 325.

***153A. Medieval Art: Early. (4)** Mr. Ayres
Prerequisite: Upper Division standing.
Architecture, sculpture, painting and the minor arts of the Early Middle Ages in Western Europe from the fourth to the eleventh century.

***153B. Medieval Art: Byzantine. (4)** Mr. Ayres
Prerequisite: Upper Division standing.
Architecture, sculpture, painting and the minor arts of the Byzantine world from 330 to 1453 A.D.

***153C. Medieval Art: Romanesque. (4)** Mr. Ayres
Prerequisite: Upper Division standing.
Architecture, sculpture and painting of the Romanesque period in Western Europe from 950 to 1200 A.D.

***153D. Medieval Art: Gothic. (4)** Mr. Ayres
Prerequisite: Upper Division standing.
Architecture, sculpture and painting of the Gothic period in Western Europe from 1150 to 1400 A.D.

***153E. Medieval Art: Italy, 13th and 14th Centuries. (4)** Mr. Ayres
Prerequisite: Upper Division standing.
The emergence of humanistic and civic ideas in the art of the Italian Trecento and Quattrocento. A survey of large civic programs of secular and secularized ecclesiatical art of the two centuries. Sculpture, architecture and painting will be discussed.

***154B. Pre-Columbian Art of South America. (4)** The Staff
Prerequisite: Upper Division standing.
The architecture, sculpture, ceramics, textiles and metalwork of the Andean civilizations from 3000 B.C. to 1532 A.D. will be examined from the technical, formal iconographical standpoints.

***154C. Pre-Columbian Art of Mexico and Central America. (4)** The Staff
Prerequisite: Upper Division standing.
The course will treat all of the arts of the Mesoamerican civilizations from 1500 B.C. to 1520 A.D. with emphasis on the growth of formal traditions and the symbolism they carried.

***155A. Renaissance Art in Fifteenth Century Italy. (4)** Mr. Meller
Prerequisite: Upper Division standing.
Fifteenth century painting, sculpture and architecture in Italy, principally Florentine.

***155B. Fifteenth Century Painting in Northern Europe. (4)** Mr. Meller
Prerequisite: Upper Division standing.
Painting in France, Flanders and Holland.

***156A. Italy: High Renaissance. (4)** Mr. Meller
Prerequisite: Upper Division standing.
Roman and Florentine painting, sculpture and architecture from Leonardo to the sack of Rome.

***156B. Sixteenth Century Art in Northern Europe. (4)** Mr. Kunzle
Prerequisite: Upper Division standing.
Most significant trends in painting, sculpture and architecture in Northern Europe.

***156C. Mannerism. (4)** Mr. Moir
Prerequisite: Upper Division standing.
Analysis of the pan-European style of Mannerism in architecture, painting and sculpture.

***156D. Venetian Painting. (4)** Mr. Meller
Prerequisite: Upper Division standing.
The evolution of Venetian painting from Jacopo Bellini to Jacopo Bassano.

***157A. Baroque Painting in Italy. (4)**
Prerequisite: Upper Division standing. Mr. Moir
Baroque painting in Italy during the seventeenth and early eighteenth centuries.

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* Yearly schedule varies—check with department.

*157B. Italian Baroque Architecture and Sculpture. (4) Mr. Moir

Prerequisite: Upper Division standing.

A study of the works of the major architects and sculptors active in Italy from the beginning of the seventeenth century until early eighteenth century.

*157C. Northern Baroque Art. (4) Mr. Moir

Prerequisite: Upper Division standing.

Architecture, sculpture and painting in Flanders, Holland and France; seventeenth and early eighteenth centuries.

*158A. Eighteenth Century Art: England. (4) Mr. Kunzle

Prerequisite: Upper Division standing.

Painting and sculpture in Georgian England.

*158B. Eighteenth Century Art: France and Italy. (4) Mr. Kunzle

Prerequisite: Upper Division standing.

Painting: Rococo to Revolution.

*158C. Neo-Classicism and Pre-Romanticism. (4) Mrs. Walker

Prerequisite: Upper Division standing.

Neo-painting, sculpture and architecture in Europe from 1730–1810. The course will emphasize the theories underlying these interrelated movements, e.g. Primitivism, Exoticism, Historicism.

*159A. Nineteenth Century Painting and Sculpture I. (4) Mr. Dorra

Prerequisite: Upper Division standing.

Major trends from Goya through Courbet. Oriented primarily for art history majors.

*159B. Nineteenth Century Painting and Sculpture II. (4) Mr. Dorra

Prerequisite: Upper Division standing.

Impressionism, Post-Impressionism, the Nabis, Art Nouveau. Oriented primarily for art history majors.

*159C. Nineteenth Century Architecture. (4) Mr. Gebhard

Prerequisite: Upper Division standing.

European and American planning and architecture from 1790 through 1914. Neo-Rationalism to the beginning of the "Early Modern Movement." The course will treat the relationship between theory, structure, form and practice during the nineteenth century.

*159D. Nineteenth Century Art in England. (4) The Staff

Prerequisite: Upper Division standing.

English art from 1800 to 1900. Primary emphasis will be on English painting and its relation to nineteenth century continental art. Architecture and sculpture will also be considered.

*160A. 20th Century Architecture. (4) Mr. Gebhard

Prerequisite: Upper Division standing.

European and American architecture from 1920 to the present. Expressionism, the International Style, "Period" architecture, the Moderne, and the Post World War II movements. The relationship between architecture, design, painting and the political and social scene during these decades.

*160B. Twentieth Century Painting and Sculpture I. (4) Mr. Dorra

Prerequisite: Upper Division standing.

Fauvism, Cubism, Futurism, Expressionism and Surrealism. Oriented primarily for art history majors.

*160C. Twentieth Century Painting and Sculpture II. (4) Mr. Dorra

Prerequisite: Upper Division standing.

The Bauhaus and abstract art. Russian developments; the School of Paris; American developments; abstract expressionism. Oriented primarily for art history majors.

*161A. American Art I. (4) The Staff

Prerequisite: Upper Division standing.

American art, including architecture, sculpture and painting before the Armory Show, 17th century through 19th century.

*161B. American Art II. (4) The Staff

Prerequisite: Upper Division standing.

Architecture, sculpture and painting after the Armory Show, ca. 1900 to the present.

*Art 161C. Art in Colonial Spanish America. (4) The Staff

Prerequisite: Upper Division standing.

Architecture, sculpture, painting and minor arts produced in the Spanish possessions, especially Mexico and Peru, from 1620 to 1820 will be discussed. The development of local tendencies and the relations to European art will be stressed.

*161D. Hispanic-American Arts. (4) The Staff

Prerequisite: Upper Division standing.

The arts of Latin America from the seventeenth to the twentieth century; the flowering of regional and provincial schools; Neo-Classicism, and the development of modern forms in the international styles.

*161E. Modern Mexican Painting. (4) Mr. Kunzle

Prerequisite: Upper Division standing.

Emphasis on the social-realist art of the muralists Rivera, Orozco and Siqueiros.

*163A. Spanish Arts to the Renaissance. (4) The Staff

Prerequisite: Upper Division standing.

Architecture, sculpture, painting and the minor arts; their interdependence from prehistoric times through the fifteenth century; Christian and Islamic forms and iconography.

*163B. Spanish Arts–Renaissance to Modern. (4) The Staff

Prerequisite: Upper Division standing.

Fusion of local Spanish types with the Renaissance. Development of Baroque, Neo-Classic and the emergence of nineteenth and twentieth century forms. Studies in architecture, sculpture, painting and the minor arts.

*164D. Modern Art I. (4) Miss Farwell, Mr. Gebhard

Prerequisite: Upper Division standing.

A survey of painting, sculpture and architecture from the French Revolution to World War I with special emphasis on development after 1900. The course is oriented for students not majoring in the history of art and is compulsory for studio majors.

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* Yearly schedule varies—check with department.

***164E. Modern Art II.** (4) Miss Farwell, Mr. Gebhard

Prerequisite: Upper Division standing.

A survey of painting, sculpture and architecture from World War I to our time, with special emphasis on development after 1945. Oriented primarily for students not majoring in the history of art and is compulsory for studio majors.

***165A. Theories of Architecture.** (4) Mr. Gebhard

Prerequisite: Upper Division standing.

An historical analysis of the relationship between architectural theories and architecture and urban planning from the fifteenth through the twentieth century.

***165B. Islamic Architecture.** (4) Mr. Gebhard

Prerequisite: Upper Division standing.

Islamic architecture of North Africa; of the Near and the Middle East from the eighth through the eighteenth century.

***166A. The Minor Arts.** (4) The Staff

Prerequisite: Upper Division standing.

An historical survey of selected minor arts.

***167A. Caricature, Cartoon and Pictorial Satire to 19th Century.** (4) Mr. Kunzle

Prerequisite: Upper Division standing.

The origins and development of satire, caricature and comic strip in the graphic arts from the Reformation to the 19th century.

***167B. Caricature and Cartoon of the 20th Century.** (4) Mr. Kunzle

Prerequisite: Upper Division standing.

Recommended preparation: 167A.

Proliferation of cartoon and comic strip in modern society.

***168A. The History of Graphic Art.** (4) The Staff

Prerequisite: Upper Division standing.

A survey of the history of fine prints since the invention of printmaking in the 15th century to the present. Different types of printmaking will be discussed and such great masters as Durer, Rembrandt, Goya, Daumier and Picasso.

181. The Art of India. (4) Miss Myer

Prerequisites: Art 2C or permission of instructor. Upper Division standing.

The rise and development of native styles in architecture, sculpture and painting, with emphasis on Hindu and Buddhist problems.

***182A. Early Chinese Art.** (4) Miss Myer

Prerequisites: Art 2C or permission of instructor. Upper Division standing.

Native traditions and foreign influences in the development of Chinese art from prehistoric times through the ninth century.

***182B. Later Chinese Art.** (4) Miss Myer

Prerequisites: Art 2C or permission of instructor. Upper Division standing.

Chinese art from the tenth to the eighteenth century, with emphasis on painting and the minor arts.

***183. The Art of Japan.** (4) Miss Myer

Prerequisites: Art 2C or permission of instructor. Upper Division standing.

Native traditions and foreign influences in the development of Japanese architecture, sculpture, painting and minor arts.

194. Special Courses. (2–5) Year. The Staff

Prerequisite: Qualified Upper Division students.

To be taken with the consent of the instructor and chairman of the department as a means of making special studies or meeting special curricular problems. No cumulative limit.

199. Independent Studies. (1–5) Year. The Staff

Prerequisites: Consent of instructor and previous completion of 125 units.

Advanced individual problems. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

***250A. Methods and Techniques in Art History Research.** (4) Mr. Moir

Prerequisite: Graduate standing.

Reading, and a series of discussions and research problems designed to give the student understanding of the different approaches to historical study of works of art.

***250B. Connoisseurship.** (4) Mr. Moir

Prerequisite: Graduate standing.

Reading, discussion and practical experience in qualitative analysis of works of art, with particular emphasis on drawings, prints and medals.

***250C. Art Criticism.** (4) The Staff

Prerequisite: Graduate standing.

Study of approaches, methods and objectives of art criticism.

***251A. Seminar on African Masks.** (4) Mr. Cole

Prerequisite: Graduate standing.

Special research in African art.

***251B. Seminar on African Arts in Context.** (4) Mr. Cole

Prerequisite: Graduate standing.

Special research in African art.

***252. Seminar in Ancient Art.** (4) Mr. Del Chiaro

Prerequisite: Graduate standing.

Special research in ancient art.

***253. Seminar in Medieval Art.** (4) Mr. Ayres

Prerequisite: Graduate standing.

Special research in medieval art.

***254. Seminar in Pre-Columbian Art.** (4) The Staff

Prerequisite: Graduate standing.

Special research in pre-Columbian art.

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* Yearly schedule varies—check with department.

[*]**255A–B. Seminar in Renaissance Art.** (4–4) Mr. Meller
Prerequisites: Graduate standing.
Special research in Renaissance art. A continuous two-quarter seminar. Individual quarters may not be taken separately for credit.

[*]**257. Seminar in Baroque Art.** (4) Mr. Moir
Prerequisite: Graduate standing.
Special research in baroque art.

[*]**258. Seminar in Eighteenth Century Art.** (4) Mr. Kunzle
Prerequisite: Graduate standing.
Special research in eighteenth century art with special emphasis on painting and prints.

[*]**259A–B. Seminar in Nineteenth Century Art, (Impressionism and Post Impressionism).** (4–4) Mr. Dorra
Prerequisite: Graduate standing.
Special research in nineteenth century art. A continuous two-quarter seminar. Individual quarters may not be taken separately for credit.

[*]**259C. Seminar in Romanticism and Realism (1800–1860).** (4) Miss Farwell
Prerequisite: Graduate standing.

[*]**260A–B. Seminar in European Art of the Twentieth Century.** (4–4) Mr. Dorra
Prerequisite: Graduate standing.
Special research in twentieth century art. A continuous two-quarter seminar. Individual quarters may not be taken separately for credit.

[*]**260C. Seminar in the Art of the Last Decade.** (4) The Staff
Prerequisite: Graduate standing.
Painting and sculpture, 1960–1970, with primary emphasis on American developments.

[*]**261. Seminar in American Art.** (4) The Staff
Prerequisite: Graduate standing.
American painting and scultpure, 1940–1960, with primary emphasis on the formation and development of Abstract Expressionism.

[*]**265. Seminar in Architectural History.** (4)
Prerequisite: Graduate standing. Mr. Gebhard
Special research in the history of architecture.

[*]**267. Caricature, Cartoon and Pictorial Satire.** (4) Mr. Kunzle
Prerequisite: Graduate standing.
Special research in the history of caricature.

[*]**282. Seminar in Oriental Art.** (4) Miss Myer
Prerequisite: Graduate standing.
Special research in Oriental art.

591C. Directed Study for the MFA in Ceramics. (2–9) Year.
Mr. Arntz, Mr. Kaganoff, Mr. Pierson
Prerequisites: Graduate standing, permission of instructor.
Individual Tutorial.
A–Arntz, K–Kaganoff, P–Pierson.

591DP. Directed Study for the MFA in Drawing and/or Painting. (2–9) Year.
The Studio Faculty
Prerequisites: Graduate standing, consent of instructor.
Individual Tutorial.
C–Cavat
D–Dole
B–Brown
RD–Dunlap
MD–Dvortscak
F–Fenton
P–Ptaszynski
R–Rohrbach
W–Warshaw

591PM. Directed Study for the MFA in Printmaking. (2–9) Year.
Mr. Cortright, Mr. McCurdy
Prerequisites: Graduate standing, permission of instructor.
Individual Tutorial.
C—Cortright, M—McCurdy.

591S. Directed Study for the MFA in Sculpture. (2–9) Year.
Mr. Thomas, Mr. Varner
Prerequisites: Graduate standing, consent of instructor.
Individual Tutorial.
T–Thomas, V–Varner

592C. Special Group Studies in Ceramics. (2–9) Year Mr. Arntz, Mr. Kaganoff, Mr. Pierson
Prerequisites: Graduate standing; consent of instructor and chairman of department.
A means of making special studies and meeting special curricular problems.

592DP. Special Group Studies in Drawing and/or Painting (2–9) Year.
The Art Studio Staff
Prerequisites: Graduate standing; consent of instructor and chairman of department.
A means of making special studies and meeting special curricular problems.

592PM. Special Group Studies in Printmaking. (2–9) Year.
Mr. Cortright, Mr. McCurdy
Prerequisites: Graduate standing; consent of instructor and chairman of department.
A means of making special studies and meeting special curricular problems.

592S. Special Group Studies in Sculpture. (2–9) Year. Mr. Thomas, Mr. Varner
Prerequisites: Graduate standing; consent of instructor and chairman of department.
A means of making special studies and meeting special curricular problems.

593MS. MFA Thesis Project. (2–9) Year.
The Art Studio Staff
Prerequisites: Graduate standing; consent of instructor and chairman of department.
Directed study on MFA Thesis Project. Overall minimum 9 units; overall maximum 18 units.

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[*] Yearly schedule varies—check with department.

595. Group Studies. (2–6) Year.
The Art History Staff

Prerequisites: Graduate standing; consent of instructor and chairman of department.

Critical review of research in selected fields.

596. Reading and Research in Art History. (2–6) Year. The Art History Staff

Prerequisites: Graduate standing; Consent of instructor and chairman of department.

Individual Tutorial. A written proposal for each tutorial must be approved by the Department Chairman and filed with the Graduate Division prior to the appropriate quarter. Total units taken not to exceed half of those required for Master's degree.

596MC. Directed Reading and Research in Art History. (2–6) Year. Mr. Dorra

Prerequisites: Graduate standing; Consent of Graduate Adviser.

Readings and study towards comprehensive examination for M.A. For Plan II students only.

597D Individual Study. (1–2) Year.
The Art History Staff

Prerequisites: Graduate standing; Consent of Graduate Adviser.

Individual study for examination for the Ph.D. degree. Limited to 12 units per quarter and 24 units total. No unit credit allowed toward degree.

598T. Master's Thesis Research and Preparation. (1–12) Year.
The Art History Staff

Prerequisites: Graduate standing; Permission of the Graduate Adviser.

Research underlying the thesis; writing the thesis. No credit allowed toward degree. Plan I students only.

599D. Ph.D. Dissertation Preparation.
(1–12) Year. The Art History Staff

Prerequisites: Graduate standing, consent of Graduate Adviser.

Terminal preparation of the dissertation. Maximum of 12 units total.

Related Courses in Another Department

***Education AS 390. Curriculum of Instructional Procedures and Materials Used in the Teaching of Secondary Art.**
(3) I, II, III. Mr. Smith

Education AS 392A–B–C–D. Student Teaching: Art. (4–4–4–4) I, II, III. Mr. Smith

Prerequisites: AS 290. Graduate Standing.

Education AS 393. Problems Seminar in the Teaching of Arts. (1) I, II, III. Mr. Smith

Prerequisite: Concurrent enrollment in Education AS292A or B or C or D. Graduate standing.

***Education AE 395. Art Methods for the Elementary School.** (3) Mr. Smith

Prerequisite: Graduate standing.

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* Yearly schedule varies—check with department.

ASIAN STUDIES

Committee in Charge
Robert L. Backus, Ph.D., *Assistant Professor of Japanese (Chairman).*
Chi-yun Chen, Ph.D., *Assistant Professor of History.*
Wilbur M. Fridell, Ph.D., *Assistant Professor of Religious Studies.*
Haruhiro Fukui, Ph.D., *Assistant Professor of Political Science.*
Immanuel C. Y. Hsu, Ph.D., *Professor of History.*
Prudence Myer, Ph.D., *Associate Professor of Art.*

Interdepartmental Major

The major in Asian Studies is an interdepartmental major designed for students planning graduate study or professional careers in this area. Emphasis is placed upon providing cultural background rather than technical training. The major is therefore intended also to serve the needs of students desiring a general education with emphasis upon this important cultural area of the world. These Asian Studies include South Asia, with emphasis upon India, Pakistan, and Ceylon; and the Far East, with emphasis upon China, Japan, Korea, and the Pacific.

The program of courses is to be made out by the student in consultation with the committee in charge. Each program will be designed to meet the needs of the individual student in accordance with his educational objectives.

Preparation for the Major

Students majoring in Asian Studies must take at least two years in one of the major Asian languages. Ordinarily this requirement will be satisfied by Chinese 1, 2, 3, 4, 5, 6; Chinese 1, 11, 12, 13, 14, 15; or Japanese 1, 2, 3, 4, 5, 6. (Students who have taken intensive language courses elsewhere and can demonstrate an equivalent level of competence, as judged by the department of Eastern Languages, may waive this requirement.) Students having special interests in South Asia may, on approval of the Committee Chairman, substitute a similar two-year sequence (or its equivalent) in one of the major languages of that region.

Students preparing for the Major must also take at least eight units of lower division work selected from the following list: Anthropology 2, 3, 5, Art 2C, Economics 1, 2, Geography 2, History 19A–B, Political Science 45, Religious Studies 30, 55, Sociology 1.

The Major

Forty units of upper division courses must be selected from the following list (descriptions of these courses may be found under the appropriate departmental headings): Anthropology 136, 142, 144, 145, 172, Art 151A, 151C, 181, 182A–B, 183, Chinese 110A–B, 112, 120A–B, 130A–B–C, 131, 132, 140, Economics 114, Geography 150, 151, 195, History 145A–B, 146A–B, 180, 181A–B, 185A–B, 186A–B, 187A–B, 188A–B, 190, 195 (East or South Asian) Japanese 101, 110A–B, 112, 120A–B–C, 140A–B–C, Philosophy 122, 123A–B–C, Political Science 126, 131, 134, 135, 136, 137, 138, 139, 196, Religious Studies 140, 141, 159A–B–C, 160, 161, 162, 164A–B, 165A–B, 166, 167, 169, 194 (East or South Asian).

Every major must take at least four units of Asian history, to be selected from either the lower or upper division list.

The Minor

Thirty-two units are required with at least 8 units selected from the following list: Anthropology 2, 3, 5, Art 2C, Economics 1, 2, Geography 2, History 19A–B, Political Science 45, Religious Studies 30, 55, Sociology 1.

Students declaring a minor in Asian Studies are not required to take any courses in Asian languages. Otherwise the course requirements are the same as for the major, except that twenty-four instead of forty units are required in the upper division.

BIOLOGICAL SCIENCES

John A. Carbon, Ph.D., *Professor of Biochemistry.*
James F. Case, Ph.D., *Professor of Zoology.*
Vernon I. Cheadle, Ph.D., *Professor of Botany.*
[4]Joseph H. Connell, Ph.D., *Professor of Zoology.*
Raymond B. Cowles, Ph.D., *Professor of Zoology, Emeritus.*
James Cronshaw, Ph.D., *Professor of Biology.*
[1]John E. Cushing, Ph.D., *Professor of Immunology.*
Demorest Davenport, Ph.D., *Professor of Zoology.*
Barbara B. DeWolfe, Ph.D., *Professor of Zoology.*
[4]Ellis Englesberg, Ph.D., *Professor of Microbiology.*
Mary M. Erickson, Ph.D., *Professor of Zoology.*
Katherine Esau, Ph.D., *Professor of Botany, Emeritus.*
Aharon Gibor, Ph.D., *Professor of Biology.*
Henry A. Harbury, Ph.D., *Professor of Biochemistry (Chairman of Department).*
Garrett J. Hardin, Ph.D., *Professor of Human Ecology.*
W. N. Holmes, D.Sc., Ph.D., *Professor of Zoology.*
Helen E. Keener, Ph.D., *Professor of Biology, Emeritus.*
Maynard F. Moseley, Ph.D., *Professor of Botany.*
Cornelius H. Muller, Ph.D., *Professor of Botany.*
[1,2]Walter H. Muller, Ph.D., *Professor of Botany.*
Elmer R. Noble, Ph.D., *Professor of Zoology.*
William K. Purves, Ph.D., *Professor of Biology.*
Dale M. Smith, Ph.D., *Professor of Botany.*
Beatrice M. Sweeney, Ph.D., *Professor of Biology.*
Alfred W. Ebeling, Ph.D., *Associate Professor of Zoology.*
[1,2]John R. Haller, Ph.D., *Associate Professor of Botany.*
Robert W. Holmes, dr. philos. *Associate Professor of Marine Biology.*
Jack L. King, Ph.D., *Associate Professor of Biology.*
Philip C. Laris, Ph.D., *Associate Professor of Biology.*
Nancy L. Lee, Ph.D., *Associate Professor of Microbiology.*
William W. Murdoch, Ph.D., *Associate Professor of Biology.*
[4]Henry I. Nakada, Ph.D., *Associate Professor of Biochemistry.*
Michael Neushul, Jr., Ph.D., *Associate Professor of Botany.*
Eduardo Orias, Ph.D., *Associate Professor of Biology.*
Ian K. Ross, Ph.D., *Associate Professor of Biology.*
George Taborsky, Ph.D., *Associate Professor of Biochemistry.*
Edward L. Triplett, Ph.D., *Associate Professor of Biology.*
James L. Walters, Ph.D., *Associate Professor of Biology.*
Adrian M. Wenner, Ph.D., *Associate Professor of Biology.*
Marvin Cassman, Ph.D., *Assistant Professor of Biochemistry.*
James J. Childress, Ph.D., *Assistant Professor of Zoology.*
Steven K. Fisher, Ph.D., *Assistant Professor of Biology.*
Richard P. Howmiller, Ph.D., *Assistant Professor of Biology.*
David M. Kohl, Ph.D., *Assistant Professor of Biology.*
Ching Kung, Ph.D., *Assistant Professor of Biology.*
Allan Oaten, Ph.D., *Assistant Professor of Mathematical Biology.*
Glenn M. Sharrock, *Assistant Professor of Zoology.*
Bruce A. Wales, Ph.D., *Assistant Professor of Botany.*

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Steven M. Horvath, Ph.D., *Professor of Physiology.*
Ralph N. Philbrick, Ph.D., *Research Associate in Botany.*
Marta S. Walters, Ph.D., *Research Associate in Biology.*

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[1] Absent on Leave Fall 1971.
[2] Absent on Leave Winter 1972.
[4] Absent on Leave 1971–72.

BASIC PREPARATION FOR ALL MAJORS

By the time of precounselling for the junior year, each student is expected to select one of the six upper division majors described below, and indicate his choice of an upper division counsellor from a list provided by the department.

All students, regardless of the major which they intend to choose, must complete the following introductory courses (58–76 units in the lower division): Biology 1A–B–C, Chemistry 1A–B–C, Organic Chemistry, Physics and Mathematics as required by the individual majors.

Chemistry 1A–B–C should be taken in the freshman year. It is recommended that Biology 2A–B–C be taken concurrently. Biology 1C may be taken during the freshman year with the consent of the instructor. Students with a weak mathematics background should make up this deficiency by completing Intermediate Algebra and Trigonometry by correspondence through the University Extension, preferably during the summer preceding enrollment in the university.

Biology 20, 20Z, or Botany 20 may be substituted for Biology 1A either by receiving a grade of A for one of these courses or by passing a written final examination for Biology 1A.

Further specific requirements or recommendations concerning the lower division program are presented under the several upper division majors described below.

COMMON REQUIREMENTS FOR ALL MAJORS

As a requirement for graduation, all students, except those who choose the Biochemistry-Molecular Biology Major, will be required to take the courses listed under Area A, at least one course* from Area B, and at least one course* from each of two of the three Areas C, D, and E. (*The corresponding laboratory courses must be taken in all cases where it is indicated that concurrent enrollment in the laboratory is required). Substitutions in the upper division program of any major may be made only with the approval of the Chairman of the Department.

The five areas and elective courses within each follow:

Area	*Pertinent Courses*
A. Genetics	Biology 130A–B.
B. Physiology	Biology 101; Botany 120, 121; Zoology 101, 109, 142A–B.
C. Development	Biology 103, 160, 174; Botany 171; Zoology 100.
D. Ecology	Biology 145A; Botany 140, 141, 142; Zoology 113A–B, 140.
E. Diversity of Form and Structure	Biology 104A–B, 131, 145B, 173; Botany 103A–B, 110, 111, 151, 170; Zoology 104, 105, 107, 111, 112A–B, 161.

Specific courses to fulfill the requirements above and/or additional requirements follow under the various upper division majors. The following courses are not accepted as fulfilling requirements in the major: Biology 123, 124, 133, 180; Zoology 25, 40.

The requirements for the Biochemistry-Molecular Biology major do not come under the common requirements listed here, and are described separately below.

SPECIAL REQUIREMENTS FOR UPPER DIVISION MAJORS

Biochemistry-Molecular Biology Major

Designed to prepare students interested in gaining an understanding of the characteristics of the molecules and the molecular mechanisms involved in living systems. Recommended especially for those planning graduate work in biochemistry, molecular biology, or microbiology.

Specific Requirements

Lower division courses: Biology 1A–B–C; Chemistry 1A–B–C; Organic Chemistry 130A–

B–C (upper division credit), 6A–B–C; Mathematics 3A–B–C, or 11A–B, and 4A (in addition Math 4B is recommended); Physics 1–2–2L–3–3L–4 or 8A–B–C.

Upper division courses: 36 upper division units including Biology 130A–B (Genetics), 108A–B–C, and 109L (Biochemistry), Physical Chemistry 113A–B–C–D, plus one additional upper division course in Biological Sciences.

Biological Sciences Major

The purpose of this major is to give the student the flexibility to program the curriculum in Biological Sciences to meet chosen requirements. According to the student's need the curriculum chosen may be specialized or broad. Each student in this program will be assigned a major adviser. As soon as possible and no later than the end of the sophomore year, the student, in consultation with his major adviser will outline a program of study for the major. This program will become part of the student's file. It will be the responsibility of the student to consult his major adviser at least once a year in order to assess the progress the student is making toward the major and to review the student's program for the coming school year.

Specific Requirements

Lower division courses: Biology 1A–B–C; Chemistry 1A–B–C; Organic Chemistry 130A–B–C, and 6A–B; or 8A–B and 6A–B; Mathematics 3A–B–C or 11A–B or 34A–B–C; Physics 1–2–2L–3–3L or 6A–B–C or 8A–B–C.

Upper division courses: A minimum of 36 upper division units in biological and related sciences so long as the *"COMMON REQUIREMENTS FOR ALL MAJORS"* are met.

Botany Major

Primarily designed to provide an understanding of plant structure and development, diversity, evolutionary relationships, functional systems, and environmental relationships.

General Requirements: Biology 1A–B–C, 130A–B, and 107 or 137; Botany 103A–B, 120; Chemistry 1A–1B–1C; Organic Chemistry 6A–B, and 8A–B, or 130A–B–C; Mathematics 3A–B–C or 11A–B or 34A–B–C; Physics 1–2–2L–3–3L or 6A–B–C or 8A–B–C.

Specific Requirements: A minimum of 36 upper division units to be taken in the Biological Sciences so long as the *"COMMON REQUIREMENTS FOR ALL MAJORS"* are met. One of the two following options should be followed, but exceptions may be agreed to by the student's adviser.

a) *Marine Botany:* Botany 170, and 171. Biology 145A, 145B, 173, 174; Zoology 112A.

b) *Terrestrial Botany:* Botany 113, 140, 151, and 110 or 111; a course in Zoology (Zoology 112A or 104 recommended).

Cellular and Organismal Biology Major

This program is intended for the student primarily interested in the experimental analysis of the life processes of plant and animal organisms. It is considered to be a logical pathway leading to graduate studies in cell biology, development of form and function in plants and animals and the various subdisciplines of phytophysiology and zoophysiology.

Specific Requirements

Lower division courses: Biology 1A–B–C; Mathematics 3A–B–C, 11A–B or 34A–B–C; Physics 1–2–2L–3–3L or 6A–B–C or 8A–B–C; Chemistry 1A–B–C, 130A–B–C (upper division credit) and 6A–B.

Upper division courses: A minimum of 36 upper division units in the Biological Sciences, including Biochemistry (Biology 108A–B–C and 109L) and Cell Structure and Function (Biology 137), so long as the *"COMMON REQUIREMENTS FOR ALL MAJORS"* are met.

Environmental Biology Major

Designed to provide the student with an understanding of the relationships of plants and animals with their physical environment and with each other, as shown at the individual, population, species, or community level, as approached through the inter-related disciplines of behavior, ecology, morphology, physiology, systematics and evolution. The location of the campus on the seashore and the close proximity of mountains and desert provide an unusual variety of marine, freshwater, and terrestrial habitats in which to work.

Specific Requirements

Lower division courses: Biology 1A–B–C; Chemistry 1A–B–C, 8A–B and 6A–B or 130A–B–C (Upper Division credit) and 6A–B; Mathematics 34A–B–C or 11A–B or 3A–B–C (a course in statistics is recommended); Physics 6A–B–C or 1–2–2L–3–3L or 8A–B–C. 3–3L or 8A–B–C.

Six to nine units from Climatology, Physical Geography, Plant Geography, Geology, Paleontology or Oceanography, either lower or upper division, *are strongly recommended; and should* be determined in consultation with the student's counsellor.

Upper division courses: Botany 103A–B; 32 additional upper division units in Biological Sciences which shall include at least 8 units each from Botany and Zoology and at least one course from each of the five categories (A–E) listed below. The courses selected within these categories (A–E) will complete the *"COMMON REQUIREMENTS FOR ALL MAJORS."*

A. Genetics: Biology 130A–B.
B. Physiology: Botany 120; Zoology 109, 142A–B.
C. Ecology: Biology 145A; Botany 140, 141, 142; Zoology 140.
D. Natural History: Botany 170, 173; Zoology 104, 105, 112A–B, 113A–B.
E. Systematics: Biology 145B; Botany 151; Zoology 161.

Zoology Major

Primarily designed for those interested in animal form, function and environmental relationships.

Specific Requirements

Lower division courses: Biology 1A–B–C; Chemistry 1A–B–C; Organic Chemistry 130A–B–C (upper division credit), 6A–B; Mathematics 3A–B–C or 11A–B or 34A–B–C; Physics 1–2–2L–3–3L or 6A–B–C or 8A–B–C.

Upper division courses: A minimum of 36 upper division units in the Biological Sciences so long as the *"COMMON REQUIREMENTS FOR ALL MAJORS"* are met. 6 to 8 units in pertinent courses in other departments may be substituted with the consent of the Chairman of the Department.

Recent Curriculum Changes

Because of the recent revisions of the curriculum of the Department of Biological Sciences, embodied in this catalog, students may experience difficulties in the interpretation of course prerequisites or in equating present courses with those of previous catalogs. These students should seek the assistance of a faculty counsellor.

Requirements for the Minor in Biology

All students electing a minor in biological sciences are required to present for graduation 30 units of which at least 12 must be upper division units. The following courses are required: Biology 1A (note prerequisite of Chemistry 1A–B); Biology 1B–C are recommended. One course from the following: Biology 130A–B, 101, Botany 113, 120, 121, Zoology 100, 101, 107, 109. One course from the following: Biology 104A–B, 173; Botany 103A–B, 110, 111, 170, 140, 141, 151; Zoology 104, 105, 111, 112A–B, 113A–B, 140.

The remaining units may be selected from the offerings in biology, botany or zoology, except Biology 180; Zoology 25, 40. *Note:* Biology 123, 124 and Biology 133 are recommended for minors in Biological Sciences.

Pre-Professional Programs

Pre-professional programs leading to subsequent study in agriculture, dentistry, forestry, laboratory technology, medicine, nursing, and similar professions are highly variable depending (a) upon the field, and (b) upon the professional training institution to be attended. The student should become familiar with the requirements of several institutions offering work in his specialty before discussing his program with his counsellor.

In general, students preparing for careers in medicine, dentistry, nursing, and laboratory technology will select one of the following as their major field: Biochemistry-Molecular Biology, Biological Sciences, Cellular and Organismal Biology, or Zoology.

Biological Sciences, Botany, Cellular and Organismal Biology, or Environmental Biology would be suitable for preparation for further study in agriculture and forestry.

All the majors in this department will prepare students to enter credential programs for teaching at elementary, secondary, or junior college levels. For detailed requirements, see the current Graduate School of Education Announcement. Students wishing to have counseling should inquire at the Department of Biological Sciences or the Graduate School of Education.

GRADUATE PROGRAMS

The enormous strides made in biology in this century have made possible new means of analysis of longstanding problems. In the process, the lines between traditional fields have become blurred. The organization of the department into graduate sections reflects these developments, while building on the strong traditions of classical biology. The sections supervise graduate studies and research in their respective areas of emphasis.

1. Biochemistry and Molecular Biology
2. Cellular and Organismal Biology
3. Environmental and Systematic Biology
4. Population Biology

General Requirements for the Degree of Master of Arts

The Department offers two plans for the Degree of Master of Arts. For further details see below.

1. In addition to fulfilling the general requirements for admission to graduate status, foreign students may be required to perform satisfactorily in an examination in English prior to admission.

2. A candidate for the master's degree must have to his credit, in addition to the general University requirements, the minimum lower and upper division requirements or their equivalents for the departmental major in the field of emphasis chosen. Students with minor deficiencies in these requirements will normally be allowed to complete them while in the graduate status.

General Requirements for the Degree of Doctor of Philosophy

1. In addition to fulfilling the general requirements for admission to graduate status, foreign students may be required to perform satisfactorily in an examination in English prior to admission.

2. Prospective candidates for the degree of Doctor of Philosophy in biology normally must have the bachelor's degree in one of the biological sciences from this University, or from an institution of equivalent standing and with a preparation deemed equivalent to that required for the bachelor's degree from this University. The student who is admittted to graduate standing with deficiencies in preparation will be required to take appropriate undergraduate courses. If a student has completed a major in a subject other than the biological sciences, he is advised to consult with the department chairman.

3. A reading knowledge of one foreign language is required. (Usually German, French, or Russian.)

4. Each prospective candidate is required to take a qualifying examination administered by the department.

5. Each candidate must complete a doctoral dissertation under the general supervision of a committee. A final oral examination is given on the dissertation and its implications.

6. Ordinarily a candidate is required to serve as a Teaching Assistant for a minimum of three quarters.

Emphasis in Biochemistry-Molecular Biology

Students interested in pursuing graduate work in biochemistry-molecular biology are advised to obtain a strong background in chemistry, physics, and mathematics and to be familiar with the concepts of biology. It is recommended that the undergraduate preparation include, as a minimum, the equivalent of the following courses offered at UCSB:

BIOLOGY		
General	1A, 1B, 1C	15
Genetics	130A, B	6
Biochemistry	108A, B, C	12
CHEMISTRY		
General	1A, 1B, 1C	12
Organic	130A, B, C	9
	6A, B, C	6
Physical	113A, B, C, D	12
MATHEMATICS	3A, 3B, 3C (4A, 4B)	12–20
PHYSICS	1, 2, 2L, 3, 3L (4, 5)	14–22

Applicants with strong undergraduate records, but lacking some of the preparation indicated above, may be admitted upon the condition that such deficiencies be removed early during graduate study. Thus, chemistry or physics majors with insufficient experience in biology, or students with extensive preparation in the biological sciences but inadequate training in chemistry, can often remedy these omissions subsequent to admission.

Requirements for the M.A.—(see general University and Departmental requirements).

Students will follow one of the following two plans:

Plan I: Thesis Plan—A minimum of 30 quarter units and a thesis are required. The units may be taken in graduate or upper division courses in the major subject, and at least 12 will normally be in the 200 and 500 series in the major subject. Courses outside the major may be substituted upon written approval by the student's advisory committee. No unit credit is allowed for the thesis.

Plan II: Comprehensive Examination Plan—A minimum of 36 units of upper division and graduate courses in the major subject is required, of which at least 18 units will normally be in the 200 and 500 series in the major subject. Courses outside the major may be substituted upon written approval by the student's advisory committee. Satisfactory performance in a comprehensive examination will cover three of the specialized areas of graduate study listed in the Ph.D. program.

Requirements for the Ph.D.—(see general University and Departmental requirements).

The following is a list of specialized areas of graduate study available to the student:

1. Macromolecules
2. Molecular and Microbial Genetics
3. Control Mechanisms, Metabolism and Development
4. Ultrastructure
5. Biology of the Bacteria and Viruses

The student is expected to select one of the areas listed above as a major and at least one as a minor field for concentration. He must also select a second minor field, which can be one of the areas listed above or an appropriate area of study offered by another section or department. The student's program will be arranged in consultation with his graduate committee. In order to ensure adequate breadth of training, the student will be expected to take at least one course in each of the five areas listed above.

Emphasis in Cellular and Organismal Biology

Students interested in pursuing graduate work in this area should obtain a strong background in chemistry, physics and biology. As a guide for the undergraduate planning a career in this area of biology it is suggested that the student acquire the knowledge and experience similar to that suggested for the undergraduate major in Cellular and Organismal Biology. Electives should be chosen which are pertinent to the student's proposed area of specialization.

Requirements for the M.A.—(see General University and Departmental requirements)

a) In addition to the general University requirements, the student must have to his credit the minimum lower and upper division courses, or their equivalents, recommended for undergraduates interested in Cellular and Organismal Biology.

b) Students will follow one of the following two plans:

Plan I: Thesis Plan—A minimum of 30 quarter units and a thesis are required. The units may be taken in graduate or upper division courses in the major subject, and at least 12 must be in the 200 and 500 series in the major subject. Courses outside the major may be substituted upon written approval by the student's advisory committee. No unit credit is allowed for the thesis.

Plan II: Comprehensive Examination Plan—A minimum of 36 units of upper division and graduate courses in the major subject is required, of which at least 18 units must be in the 200 and 500 series in the major subject. Courses outside the major may be substituted upon written approval by the student's advisory committee. Satisfactory performance in a comprehensive final examination is also required. The comprehensive examination will cover three of the specialized areas of graduate study listed in the Ph.D. program.

Requirements for the Ph.D.—(see General University and Departmental requirements).

The following is a list of the specialized areas of graduate study available to the student:

1. Cell physiology
2. Development
3. Comparative physiology
4. Endocrinology
5. Neurophysiology and behavior
6. Plant physiology
7. Ultrastructure

The student will be expected to choose one of the areas listed above as a major field of study. Two minor areas of study may be selected from either the areas listed above or some area outside the section of cellular and organismal biology. Courses approved by the student's graduate committee will be distributed in the major and two minor areas of specialization.

Emphasis in Environmental and Systematic Biology

Programs in environmental and systematic biology emphasize the biology of plants or animals in marine, freshwater or terrestrial environments.

Students intending to pursue graduate work in environmental biology must complete the equivalent of the minimum requirements of the undergraduate major in environmental biology at UCSB. Students whose interests lie primarily in botanical or zoological studies will better prepare for graduate work by completing the equivalent of the undergraduate major in botany or zoology.

Students who are admitted to one of the graduate programs with deficiencies in their undergraduate major will be expected to make these up as soon as possible following their admission.

Requirements for the M.A.—(See General University and Departmental Requirements).

A student may select environmental biology, systematics, botany or zoology as his major field. The M.A. degree may be earned by following either Plan I or Plan II as outlined below.

Plan I: Thesis Plan—A minimum of 30 quarter units and a thesis are required. The units may be taken in graduate or upper division courses in the major subject and at least 12 must be in the 200 and 500 series in the major subject. Courses outside the major may be substituted upon written approval by the student's advisory committee. No unit credit it allowed for the thesis.

Plan II: Comprehensive Examination Plan—A minimum of 36 units of upper division and graduate courses in the major subject is required, of which at least 18 units must be in the

200 and 500 series in the major subject. Satisfactory performance in a comprehensive final examination is also required. The Comprehensive Examination will cover a major and one minor area of emphasis. The major emphasis must be selected from the list given below for the Ph.D. program. The minor area may be selected from this list, or, with the written approval of the section, from other appropriate disciplines.

Requirements for the Ph.D.—(See General University and Departmental Requirements).

Each student will select, with the approval of his advisory committee, a major and two minor fields of study. The minor fields may be selected from appropriate disciplines in other sections or departments.

The following is a list of specialized areas of study offered in the section of Environmental and Systematic Biology.

1. Biochemical systematics
2. Biogeography
3. Marine algology (systematics, morphology and development)
4. Plant ecology
5. Plant physiology
6. Plant systematics and biosystematics (vascular plant)
7. Vascular plant anatomy, morphology and phylogeny
8. Vertebrate behavior
9. Vertebrate annual cycles

Emphasis in Population Biology

Each graduate student in Population Biology must meet the equivalent of the minimum requirements of one of the undergraduate majors in the Department of Biological Sciences at UCSB, including a year of calculus in college. Students with degrees in disciplines other than biological sciences also must complete these requirements.

Requirements for the M.A.—(See General University and Departmental Requirements).

Plan I: Thesis Plan—A minimum of 30 quarter units in courses in the major subject approved by the student's advisor and a thesis are required. The units may be taken in Graduate or Upper Division courses, and at least 12 must be in the 200 and 500 series in the major subject. Courses outside the major may be substituted upon written approval by the student's advisory committee.

Plan II: Comprehensive Examination Plan—A minimum of 36 quarter units in courses in the major subject of which at least 18 units must be in the 200 and 500 series and satisfactory performance in a comprehensive final examination are required. Courses outside the major may be substituted upon written approval by the student's advisory committee. The Comprehensive Examination will cover a major and a minor area of emphasis. The major emphasis must be selected from the list given below for the Ph.D. program. The minor area may be selected from this list or, with the approval of the section, from another appropriate discipline.

Requirements for the Ph.D.—(See General University and Departmental Requirements).

The student must meet all of the University and Departmental requirements for the Ph.D. degree.

The following is a list of specialized areas of graduate study in Population Biology:

1. Behavior
2. Biological oceanography (fish and phytoplankton)
3. Comparative Immunology
4. Ichthyology (systematics, morphology and ecology)
5. Parasitology
6. Population Ecology
7. Population Genetics

Each student is expected to select one of these areas as a major field of study. One minor area of study must be selected from these areas or, with the approval of his graduate committee, from any other discipline in the University.

BIOLOGY

Lower Division Courses

1A. Introductory Biology. (4) I. Mr. Purves, Mr. Walters

Lecture, four hours. Prerequisite: Chemistry 1A–B–C, and concurrent enrollment in Biology 1AL.

Cellular morphology, cellular physiology and metabolism, genetics.

1AL. Introductory Biology Laboratory. (1) I. Mr. Purves, Mr. Walters

Laboratory, three hours. Prerequisite: Chemistry 1A–B–C, and concurrent enrollment in Biology 1A.

Laboratory exercises in cell biology and genetics.

1B. Introductory Biology. (4) II. Mr. Case, Mr. Noble, Mr. Sharrock

Lecture, four hours. Prerequisite: Biology 1A–1AL, and concurrent enrollment in Biology 1BL.

Population biology, and introduction to the major groups of animals.

1BL. Introductory Biology Laboratory. (1) II. Mr. Case, Mr. Noble, Mr. Sharrock

Laboratory, three hours. Prerequisite: Biology 1A–1AL, and concurrent enrollment in Biology 1B.

Laboratory exercises in zoology and population biology.

1C. Introductory Biology. (3) III. Mr. Moseley, Mr. Neushul, Mr. Ross

Lecture, three hours. Prerequisite: Concurrent enrollment in Biology 1CL.

Introduction to the major groups of plants and microorganisms.

1CL. Introductory Biology Laboratory. (2) III. Mr. Moseley, Mr. Neushul, Mr. Ross

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 1C.

Laboratory exercises in the biology of plants and microorganisms.

Contemporary Natural Science (See Natural Science 1A–1B–1C). (4–4–4) I, II, III. Mr. Purves and Staff

Sequence, beginning in the fall.

2A–B–C. Special Topics in Biology for Freshmen. (1–1–1) I, II, III. The Staff

Seminar, one hour.

Seminars by the staff concerning current research. References to review articles and the original literature will be provided. Recommended for all freshmen interested in the biological sciences.

***20. Concepts of Biology.** (5) I, II, III. Mr. Laris

Lecture, four hours; laboratory, three hours.

Unifying principles of biology; cell structure, functions, and energy relations; cybernetics, natural selection, evolution; reproduction and the principles of genetics and development; nature and growth of populations. Not ordinarily open to majors in the Department of Biological Sciences for credit.

Not open for credit toward graduation to students who have completed Biology 20Z or Botany 20.

***20Z. General Biology for Modern Man.** (4) III. Mr. Childress

Lecture, three hours; laboratory, three hours.

This course will emphasize those aspects of Biology considered to be particularly relevant to a citizen in today's world. It will place emphasis on the environmental aspects of biology, but will also give an overall view of biology.

Not open for credit toward graduation to students who have completed Biology 20 or Botany 20.

Upper Division Courses

100. Biology, the University and Society. (3) III. Mr. Murdoch

Lecture, one hour; discussion, one hour.

An analysis of the relationships between biology, the University, and society. There will be extensive reading.

101. Cell Physiology. (3) I. Mr. Gibor

Lecture, three hours. Prerequisite: Biology 1A–B–C (or equivalent); and organic chemistry, with laboratory.

The chemical and physical principles which govern cellular and subcellular organization and function.

102. Methods in Cell Physiology. (2) II. Mr. Gibor

Laboratory, six hours. Prerequisite: Biology 101.

Demonstrations and experiments in cell physiology.

103. Introduction to Developmental Mechanisms (3) III. Mr. Kohl

Lecture, three hours. Prerequisite: Biology 108A, Biology 101 or Botany 121, and Zoology 100.

An introduction to the study of mechanisms that control development.

103L. Laboratory in Developmental Mechanisms. (1) III. Mr. Kohl

(Given alternate years.)

Laboratory, three hours. Prerequisite: Biology 103 or taken concurrently.

Selected experiments on mechanisms that control development.

104A. General Microbiology. (3) I. Mrs. Lee

Lecture, three hours. Prerequisites: Biology 1A–B–C; Chemistry 8A–B and 6A–B, or 130A–B–C and 6A–B; and concurrent enrollment in Biology 104AL.

An introduction to the biological properties of microorganisms; the historical foundations of the field; a study of the major groups of microorganisms, with emphasis on the bacteria, their structure, cultivation and diversity.

104AL. Laboratory in Microbiology. (2) I. Mrs. Lee

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 104A.

Experiments dealing with the isolation, cultivation, and enrichment of diverse microorganisms.

104B. General Microbiology. (3) II. Mrs. Lee

Lecture, three hours. Prerequisites: Biology 104A–

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* Under general education requirement 5a, unit credit toward graduation will be allowed for only one of the three courses listed.

AL, and concurrent enrollment in Biology 104BL.
Physiology and genetics of microorganisms.

104BL. Laboratory in Microbiology. (2) II. Mrs. Lee

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 104B.

Experiments dealing with the physiology and genetics of microorganisms.

107. Cytology and Cytogenetics. (3) II. Mr. Walters

Lecture, three hours. Prerequisites: Biology 1A–B–C, and concurrent enrollment in Biology 107L.

Fundamentals of cellular structure and function, with special emphasis on the chromosomes, cell division, and the interrelations of cytology with genetics and evolution.

107L. Laboratory in Cytology and Cytogenetics. (1) II. Mr. Walters

Laboratory, three hours. Prerequisite: Concurrent enrollment in Biology 107.

Cytological techniques; laboratory studies of cell division, chromosome behavior and chromosomal variation.

108A. General Biochemistry. (4) I. Mr. Harbury

Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 130A–B–C and 6A–B (or Chemistry 8A–B and 6A–B).

Chemistry of proteins; enzymic catalysis; bioenergetics; metabolism of carbohydrates.

108B. General Biochemistry. (4) II. Mr. Carbon

Lecture, three hours; discussion, one hour. Prerequisite: Biology 108A.

Chemistry and metabolism of nucleic acids; biosynthesis of proteins; biochemical genetics.

108C. General Biochemistry. (4) III. Mr. Cassman

Lecture, three hours; discussion, one hour. Prerequisite: Biology 108A–B.

Metabolism of biologically important compounds; metabolic control mechanisms.

109L. Laboratory in Biochemistry. (2) II. The Staff

Laboratory, six hours. Prerequisites: Biology 108A–B. (Biology 109L may be taken concurrently with Biology 108B).

Laboratory techniques in biochemistry.

118. Principles of Biochemistry. (4) I. Mr. Taborsky

Lecture, three hours; discussion, one hour. Prerequisite: Chemistry 1A–B–C, Chemistry 8A–B and 6A–B or consent of the instructor.

An introduction to molecular structures and mechanisms of living systems. Not for majors in Biochemistry-Molecular Biology or Cellular and Organismal Biology.

123. Cybernetic Processes in Human Ecology. (5) Mr. Hardin

(Not given 1971–72.)

Lecture, four hours; discussion, two hours. Prerequisite: Biology 1A or 20; Botany 20; or equivalent.

A study of controversial social problems and the relevance of biological facts and principles to their solution. Elements of cybernetics and systems analysis. Population growth and related pollution and conservation problems.

124. Competitive Processes in Human Ecology. (5) III. Mr. Hardin

Lecture, four hours; discussion, two hours. Prerequisite: Biology 1A or 20; Botany 20; or equivalent.

The biological effects of thermonuclear, biological and chemical warfare. The influence of radiation and medical prostheses on selection and future evolution of man.

127. Principles of Immunology. (3).

(To be given 1972–73) Mr. Cushing

Lecture, three hours. Prerequisites: Organic Chemistry, including laboratory (may be taken concurrently; and a year's course in the biological sciences or equivalent, and concurrent enrollment in Biology 127L.

The principles of immunology are treated as basic biological phenomena. Relationships to medicine, biochemistry, genetics, embryology, and evolution.

127L. Laboratory in Immunology. (1)

(To be given 1972–73) Mr. Cushing

Laboratory, three hours. Prerequisite: Concurrent enrollment in Biology 127.

Laboratory studies in immunology.

130A. General Genetics. (4) I, II. Mr. Orias and Staff

Lecture, three hours; discussion, one hour. Prerequisite: Biology 1A–B–C.

An introduction to the mechanisms which govern the transmission and translation of the hereditary information, as derived from studies of man, other animals, plants and microorganisms.

130B. General Genetics. (2) II, III. Mr. Orias and Staff

Lecture two hours. Prerequisite: Biology 130A.

An introduction to the mechanisms which govern the transmission and translation of the hereditary information, as derived from studies of man, other animals, plants and microorganisms.

130L. Genetics Laboratory. (2) III. Mr. Orias and Staff

Laboratory, six hours. Prerequisite: Biology 130A or consent of instructor.

An introduction to the experimental analysis of the mechanisms of heredity.

131. Evolution. (3) II. Mr. Cushing

Lecture, three hours. Prerequisite: Biology 130A–B.

Organic evolution, with critical discussion of possible mechanisms involved.

133. Principles of Human Genetics. (3) III. Mr. Walters

Lecture, three hours. Prerequisite: Biology 20 or equivalent and consent of instructor.

Basic processes of heredity in man and their application to such matters as the heredity-environment problem, population genetics, heredity counselling, medico-legal problems, selection and evolution.

136A–B. Biometry. (3–3) II, III. Mr. Oaten

Lecture, three hours. Prerequisites: Mathematics 3A–B–C or 30A–32–33, or consent of instructor, and concurrent enrollment in Biology 136AL–BL.

Statistical methods in biology. Includes descriptive statistics, frequency distributions, statistical inference, analysis of variance, correlation, regression, and non-parametric methods. Special emphasis is placed on their interpretation, correct application and efficient computation.

136AL–BL. Laboratory in Biometry. (1–1) II, III. Mr. Oaten

Laboratory, four hours. Prerequisite: Concurrent enrollment in Biology 136A–B.

Practical instruction in solving problems and using calculators.

137. Cell Structure and Function. (3) I. Mr. Cronshaw

Lecture, three hours. Prerequisite: Biology 1A–B–C.

Advanced studies of cellular ultrastructure, nucleocytoplasmic interactions and differentiation.

145A. Biology of Aquatic Environments. (3) III. Mr. R. Holmes

(Not given 1971–72.)

Lecture, two hours; discussion, one hour. Prerequisites: Upper division standing and permission of the instructor.

A discussion of the physical and chemical characteristics of biological significance in fresh water and marine environments.

145AL. Methods in Biology of Aquatic Environments. (2) III. Mr. R. Holmes

(Not given 1971–72.)

Laboratory, three hours; field trip, three hours. Prerequisites: Biology 145A (Must be taken concurrently) and permission of the instructor.

A survey of physical and chemical methods used by limnologists and oceanographers, supplemented with field observations.

145B. Biology of Aquatic Plants. (3) III. Mr. R. Holmes

Lecture, two hours. Prerequisites: Biology 145A and permission of the instructor.

Morphology, systematics, life cycles, and general ecology of fresh water and marine vegetation, with an emphasis on planktonic plants.

145BL. Methods in Biology of Aquatic Plants. (2) III. Mr. R. Holmes

Laboratory, three hours; field trip, three hours. Prerequisites: Biology 145A (Must be taken concurrently with Biology 145B) and permission of the instructor.

Laboratory and field experience in the quantitative enumeration and identification of freshwater and marine planktonic plants, supplemented with experience in the measurement of primary production, plant pigments, etc.

160. Plant Development. (2) III. Mrs. B. Sweeney

Lecture, two hours. Prerequisites: Biology 1A–B–C; Chemistry 130A–B–C, and concurrent enrollment in Biology 160L.

The development of plants guided by their physiological responses to light and gravity, the interaction of hormones, and other factors.

160L. Laboratory in Plant Development. (2) III. Mrs. B. Sweeney

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 160.

Techniques for the study of developmental processes in higher plants.

173. Introduction to Mycology. (4) I. Mr. Ross

Lecture, three hours; discussion, one hour. Prerequisites: Biology 1A–B–C.

An introduction to the structure and function of fungi with emphasis on their development and associations with other organisms, including man.

174. Methods in Experimental Mycology. (2) II. Mr. Ross

(To be given alternate years.)

Laboratory, six hours. Prerequisites: Biology 173 or consent of the instructor.

Techniques and experimentation on fungal growth, development and differentiation.

175. Fungal Development. (2) III. Mr. Ross

(To be given alternate years—Spring 1973.)

Lecture, two hours. Prerequisites: Biology 173 and 174.

The development of fungi as a function of their response to interactions between the genome and intercellular and environmental stimuli.

180. Public Health. (4) The Staff

(Not given 1971–72)

Lecture, two hours; discussion, two hours. Prerequisite: Biology 1A–B–C or Biology 20, or Botany 20, or equivalent.

The nature of organic and communicable disorders, their predisposing factors, effects on society, and control.

194. Group Studies for advanced students. (1) I, II, III. The Staff

Oral reports by students; one seminar period. Prerequisite: Consent of the instructor. (May be repeated for a maximum of four units).

A. Biochemistry-Molecular Biology: Mr. Cassman (I), Mr. Taborsky (II), Mr. Harbury (III).
B. Biochemistry-Molecular Biology: The Staff.
C. Systematics: Mr. Smith (I).
D. Plant Ecology: Mr. Wales and Mr. C. H. Muller (I, II, III).
E. Embryology: Mr. Kohl and Mr. Triplett (I, II, III).
F. General Physiology: Mr. Laris (I).
G. Reptilian Ecology: (Not offered 1971–72).
H. Immunology: Mr. Cushing (III).
I. Phycology: Mr. Neushul (I, II, III).
K. Biometry: (Not offered 1971–72).
M. Comparative Physiology: Mrs. DeWolfe and Mr. Chaffee (II).
N. Plant Physiology: Mr. Purves (I, II, III).
Q. Aquatic Biology: Mr. Ebeling and Mr. R. Holmes (I, II, III).
R. Neurophysiology: Mr. Case (III).
T. Parasitology: Mr. Noble (I, II, III).
U. Plant Geography: (Not offered 1971–72).
V. Mycology: Mr. Ross (III).

X. Cell Biology: Mr. Cronshaw (I, II, III).
Y. Plant Morphology: Mr. Neushul and Mr. Moseley (II).
Z. Marine Pollution: Mr. Childress (I).

195A–B. Development of Biological Ideas. (2–2) II, III. Mr. Hardin

Discussion, two hours. Prerequisite: Upper division standing in the department and consent of the instructor.

Reading of biographies and classical original papers in biology, followed by individual reports and class discussion.

198AA–198ZZ. Readings in Biological Sciences. (1–5) I, II, III. The Staff

Individual conferences one hour every two weeks. Prerequisites: Senior standing with a major in biological sciences and consent of the instructor. 198 courses are limited to no more than 5 units each.

Special readings designed to broaden the outlook of students and to knit into a cohesive whole the basic principles underlying the major disciplines in the field. Each faculty member has a unique letter designation, which is the same as in the 199 and 599 series.

199AA–199ZZ. Independent Studies in the Biological Sciences. (1–5) I, II, III. The Staff

Hours and credit by arrangement with any member of the staff. Laboratory or field. Prerequisites: Senior standing with a major in biological sciences and consent of the instructor. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total. Each faculty member has his own course identified by the following code: J. A. Carbon, 199AC; J. F. Case, 199FC; M. Cassman, 199MC; J. J. Childress, 199CC; J. H. Connell, 199HC; J. Cronshaw, 199JC; J. E. Cushing, 199EC; D. Davenport, 199DD; B. B. DeWolfe, 199BD; A. W. Ebeling, 199AE; E. Englesberg, 199EE; M. M. Erickson, 199ME; S. Fisher, 199SF; A. Gibor, 199AG; J. R. Haller, 199JH; H. A. Harbury, 199HH; G. Hardin, 199GH; R. W. Holmes, 199RH; W. N. Holmes, 199WH; R. P. Howmiller, 199PH; J. L. King, 199JK; D. M. Kohl, 199DK; C. Kung, 199CK; P. C. Laris, 199PL; N. Lee, 199NL; M. F. Moseley, 199 MM; C. H. Muller, 199CM; W. H. Muller, 199HM; W. W. Murdoch, 199WM; H. I. Nakada, 199HN; M. Neushul, 199 MN; E. R. Noble, 199EN; A. Oaten, 199AO; E. Orias, 199EO; W. K. Purves, 199WP; I. K. Ross, 199IR; G. M. Sharrock, 199GS; D. M. Smith, 199DS; B. M. Sweeney, 199BS; E. L. Triplett, 199ET; G. Taborsky, 199GT; B. A. Wales, 199BW; J. L. Walters, 199JW; A. M. Wenner, 199AW.
(Visiting Faculty Members, 199QQ; 199XX; 199YY; 199ZZ)

Graduate Courses

201. Neurophysiology. (3) III. Mr. Case

Lecture, three hours. Prerequisite: A course in cellular or animal physiology.

The properties of nerve, neural systems and sense organs as illustrated with invertebrate material.

201L. Laboratory in Neurophysiology. (2) III. Mr. Case

Laboratory, six hours. Prerequisite: Consent of the instructor.

Laboratory projects illustrating the neurophysiology of invertebrates.

202. Biochemical Embryology. (2) I. Mr. Kohl

Lecture, two hours. Prerequisites: Biology 103; and consent of instructor.

Recent advances in the biochemistry of animal development and cell differentiation.

203. Models of Developing Cell Systems. (2) III. Mr. Triplett

Lecture, two hours. Prerequisites: Biology 103; and consent of instructor.

A mathematical treatment of development phenomenon. Models of cellular differentiation and cellular associations.

203L. Laboratory on Models of Developing Cell Systems. (1) III. Mr. Triplett

Laboratory, three hours. Prerequisite: Concurrent enrollment in Biology 203.

Computer methods of dealing with models of developing cell systems. Practice in the use of analog and digital computers in studies on development.

204. Advanced Methods in Cell Physiology. (3) III. Mr. Gibor

Lecture, one hour; laboratory, six hours. Prerequisite: Biology 102 or Zoology 101L and consent of the instructor.

Advanced procedures for analysis of composition and function of components of the cell.

205A. Methods in the Characterization of Biological Macromolecules. (Joint listing with the Department of Chemistry) (3) II.
Mr. Cassman, Mr. Hooker, Mrs. Lee

Lecture, two hours; discussion, one hour. Prerequisites: Biochemistry, Calculus, Physical Chemistry or the consent of the instructors.

Theory and practice of physical methods employed to study macromolecules. Hydrodynamic properties, including sedimentation, diffusion, viscosity, osmotic pressure.

205B. Methods in the Characterization of Biological Macromolecules. (Joint listing with the Department of Chemistry) (3) III.
Mr. Cassman, Mr. Hooker, Mrs. Lee

Lecture, two hours; discussion, one hour. Prerequisite: Biology 205A.

Theory and practice of physical methods employed to study macromolecules. Spectroscopic techniques, including ORD, CD, UV, fluorescence and phosphorescence, NMR, ESR, EM, and X-ray diffraction.

205C. Methods in the Characterization of Biological Macromolecules. (Joint listing with the Department of Chemistry) (3) I.
Mr. Cassman, Mr. Hooker, Mrs. Lee

Lecture, two hours; discussion, one hour. Prerequisites: Biology 205A–B, or the consent of the instructors.

Selected topics in physical biochemistry.

207. Genes, Enzymes and Control Mechanisms. (3) I. Mr. Englesberg

(To be given 1972–73.)

Lecture, three hours. Prerequisite: Biology 104A–B, 108A–B–C, 130A–B, or consent of the instructor.

A study of gene structure, function and expression.

208. Enzymology. (3) I. The Staff

Lecture, three hours. Prerequisite: Consent of the instructor.

General properties of enzymes—including the mechanism of action, kinetics, energetics and properties of enzymes, coenzymes and multienzyme systems.

208L. Enzymology Laboratory. (2)

(Not given 1971–72.) The Staff

Laboratory, six hours. Prerequisite: Biology 208 or consent of instructor.

Selected experiments to illustrate the modern techniques of enzyme isolation, purifications and characterizations.

209L. Advanced Laboratory in Biochemistry. (2) III. The Staff

Laboratory, six hours. Prerequisite: Consent of the instructor. Advanced experiments in biochemistry.

210. Cell Heredity. (3) III. Mr. Orias

(Given alternate years.)

Lecture, three hours. Prerequisite: Biology 130A–B and one quarter of Biochemistry, or consent of the instructor.

The cellular and molecular mechanisms underlying the transmission and regulated expression of genetic determinants, with emphasis upon studies of microorganisms.

212. Population Genetics. (3) I. Mr. King

Lecture, three hours. Prerequisite: Consent of the instructor.

Discussion of evolutionary dynamics in terms of changes in gene frequency. Statistical study of the consequences of Mendelian principles in populations.

213. Biochemistry of the Nucleic Acids. (3) III. Mr. Carbon

Lecture, three hours. Prerequisite: Biology 108A–B and Organic Chemistry or consent of the instructor. (Chemistry 245 is recommended.)

Nucleic acid structure and function, chemistry of nucleotides and polynucleotides, sequencing methods, biosynthesis, polymerases, and nucleases.

214. Structure and Function of Proteins. (3) III. Mr. Taborsky

Lecture, three hours. Prerequisite: consent of the instructor.

Aspects of the structure of proteins and protein-prosthetic group systems; interactive effects; mechanisms of action.

215. Comparative Biochemistry. (3)

(Not given 1971–72.) Mr. Nakada

Lecture, three hours. Prerequisite: Consent of the instructor.

A study of biochemical diversities within the framework of biochemical unities of life.

218. Advanced Immunology. (2) III. Mr. Cushing

Lecture, two hours. Prerequisite: Biology 127, a course in elementary genetics, or consent of the instructor.

Advanced consideration of selected topics in immunology.

220. Experimental Cytology and Electron Microscopy. (2) III. Mr. Cronshaw

Lecture, two hours. Prerequisites: Biology 108A–B–C or consent of instructor, and concurrent enrollment in Biology 220L.

An introduction to the techniques of structural cytology.

220L. Laboratory in Experimental Cytology and Electron Microscopy. (2) III. Mr. Cronshaw

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 220.

Use of the electron microscope and preparation techniques for electron microscopy.

225. Photobiology. (3) Mr. Purves

(Not given 1971–72.)

Lecture, three hours. Prerequisite: Biology 108A, and Introductory physics.

Physics of light, laws of photochemistry, principles of action and absorption spectroscopy; specific topics in the photobiology of plants, animals, and microorganisms, with emphasis on the biophysical approach.

232. Molecular Evolution. (2) II. Mr. King

Lecture, two hours. Prerequisite: Consent of instructor.

The analysis and interpretation of evolutionary divergence of proteins and nucleic acids. The discussion will focus on calculation of rates of molecular change, the patterns and processes involved, the construction of phylogenetic trees, and some of the basic laboratory procedures.

234. Physiology of Algae. (2) I. Mrs. B. Sweeney

Lecture, two hours. Prerequisites: Botany 170 (or equivalent), Organic Chemistry and concurrent enrollment in Biology 234L.

Physiology of the responses of marine and fresh-water algae to light, temperature and the chemical composition of their environment.

234L. Laboratory in Physiology of Algae. (2) I. Mrs. B. Sweeney

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 234.

Techniques for the study of algal physiology.

236. Function and Behavior of Coenocytic Fungi. (2) II. Mr. Ross

Lecture, two hours. Prerequisites: Biology 173 and consent of the instructor.

Aspects of the genetic (heterocaryotic and parasexual) and epigenetic regulation of interactions within and among the multi-nucleate, acellular fungi.

245. Advanced Population Biology. (3)

(Not given 1971–72.) Mr. Murdoch

Lecture, three hours. Prerequisite: An ecology course and permission of instructor.

A course dealing in depth with a few selected aspects of population and community dynamics of organisms. Extensive reading of original papers.

247. Mathematical Biology. (3) I. Mr. Oaten

Lecture, three hours. Prerequisites: Consent of the instructor.

Multiple Linear regression and analysis of variance with problems of application in biology; stochastic and deterministic models in biology.

250. Marine Phytoplankton. (2) I.

(Not given 1971–72.) Mr. R. Holmes

Lecture, two hours. Prerequisites: Courses in Oceanography and Marine Plankton; or consent of the instructor; and concurrent enrollment in Biology 250L.

A laboratory course designed to acquaint the student with the problems and methods of cultivation of marine planktonic protists.

250L. Laboratory in Marine Phytoplankton. (1) I. Mr. R. Holmes

(Not given 1971–72.)

Laboratory, three hours. Prerequisite: Concurrent enrollment in Biology 250.

Field studies in phytoplankton ecology and biological oceanography.

251. Cultivation of Marine Planktonic Protists. (1) I. Mr. R. Holmes

(Not given 1971–72.)

Lecture, one hour. Prerequisites: Consent of instructor and concurrent enrollment in Biology 251L.

A laboratory course designed to acquaint the student with the problems and methods of cultivation of marine planktonic protists.

251L. Laboratory in Cultivation of Marine Planktonic Protists. (2) I. Mr. R. Holmes

(Not given 1971–72.)

Laboratory, six hours. Prerequisite: Concurrent enrollment in Biology 251.

A discussion of techniques used in the cultivation of marine planktonic protists.

262. Literature in Molecular Biology. (1) I, II, III. Mr. Orias

Discussion, one hour. Prerequisites: At least one year of graduate work, and consent of the instructor.

Critical reading and presentation of the current literature in molecular biology by staff, postdoctoral fellows and graduate students.

264. Literature in Nucleic Acids. (1) I, II, III. Mr. Carbon, Mr. Orias

Discussion, one hour. Prerequisite: Consent of instructor.

Critical reading and presentation of the recent literature on nucleic acids by staff, postdoctoral fellows and graduate students.

268. Literature in Ecological Genetics. (2) III. Mr. King

Seminar discussion, two hours. Prerequisites: Population genetics and graduate standing or consent of instructor.

A survey of current and recent literature on the genetics of natural populations, with emphasis on studies of migration and gene flow, genetic adaptation to diverse habitats, and patterns of molecular polymorphism. Each student is to prepare and present a critique of one or more journal publications and conduct a discussion of the material.

595A–Z. Group Studies. (1) I, II, III. The Staff

Seminar, one to two hours. Prerequisites: Consent of the instructor. (May be repeated for a maximum of six units.)

A critical review of research in selected fields of biology. Subject matter for these seminars will be selected from the following list:

A. Biochemistry–Molecular Biology:
B. Biochemistry–Molecular Biology: Dr. J. A. Carbon (AC); Dr. M. Cassman (MC); Dr. E. Englesberg (EE); Dr. H. A. Harbury (HH); Dr. D. M. Kohl (DK); Dr. Ching Kung (CK); Dr. N. Lee (NL); Dr. H. I. Nakada (HN); Dr. E. Orias (EO); Dr. G. Taborsky (GT); Dr. E. L. Triplett (ET).
C. Systematics: Dr. J. R. Haller (JH); Dr. D. M. Smith (DS).
D. Plant Ecology: Dr. C. H. Muller (CM); Dr. B. A. Wales (BW).
E. Embryology: Dr. D. M. Kohl (DK); Dr. E. L. Triplett (ET).
F. General Physiology: Dr. P. C. Laris (PL); Dr. A. Gibor (AG).
G. Reptilian Ecology: Dr. M. M. Erickson (ME).
H. Immunology: Dr. J. E. Cushing (EC); Dr. E. L. Triplett (ET).
I. Phycology: Dr. M. Neushul (MN).
K. Biometry: Dr. A. Oaten (AO).
M. Comparative Physiology: Dr. B. B. DeWolfe (BD); Dr. R. J. Chaffee (RC).
N. Plant Physiology: Dr. W. K. Purves (WP).
O. Invertebrate Behavior: Dr. D. Davenport (DD).
P. Advanced Population Ecology: Dr. J. H. Connell (HC); Dr. W. W. Murdoch (WM); Dr. J. L. King (JK); Dr. A. Oaten (AO); Dr. G. M. Sharrock (GS).
Q. Aquatic Biology: Dr. A. W. Ebeling (AE); Dr. R. W. Holmes (RH).
R. Neurophysiology: Dr. J. F. Case (FC).
T. Parasitology: Dr. E. R. Noble (EN).
U. Plant Geography: Dr. J. R. Haller (JH).
V. Mycology: Dr. I. K. Ross (IR).
X. Cell Biology: Dr. J. Cronshaw (JC).
Y. Plant Morphology: Dr. M. Neushul (MN); Dr. M. F. Moseley (MM).
Z. Marine Pollution: Dr. J. J. Childress (CC).

596AA–596ZZ. Directed Reading and Research. (2–12) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor. May be repeated for credit up to half of the units required for the M.A. degree.

Each faculty member has a unique letter designation, which is the same as listed in the 599AA–ZZ series.

597AA–597ZZ. Individual Study for Master's Comprehensive Examinations and Ph.D. Examinations. (1–12) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor. No unit credit allowed toward advance degree.

Enrollment limited to 24 units per examination. Maximum of 12 units per quarter. Each faculty member has a unique letter designation, which is the same as listed in the 599AA–ZZ series.

598AA–598ZZ. Master's Thesis Research and Preparation. (1–6) I, II, III. The Staff

Prerequisite: M.A. (Thesis) candidate and consent of committee chairman. For research underlying the thesis and writing of the thesis. Maximum of 12 units total. No unit credit allowed toward degree. Each faculty member has a unique letter designation, which is the same as listed in the 599AA–ZZ series.

599AA–599ZZ. Ph.D. Dissertation Preparation. (1–12) I, II, III. The Staff

Prerequisite: Ph.D. candidate and consent of instructor. May be repeated for credit up to 12 units total. For writing of the dissertation. Each faculty member has his own doctoral research course identified by a two-letter code as follows:

John A. Carbon, 599-AC; James F. Case, 599-FC; Marvin Cassman, 599-MC; James J. Childress, 599-JC; Joseph H. Connell, 599-HC; James Cronshaw, 599-CC; John E. Cushing, 599-EC; Demorest Davenport, 599-DD; Barbara B. DeWolfe, 599-BD; Alfred W. Ebeling, 599-AE;

Ellis Englesberg, 599-EE; Mary M. Erickson, 599-ME; Steven K. Fisher, 599-SF; Aharon Gibor, 599-AG; John R. Haller, 599-JH; Henry A. Harbury, 599-HH; Garrett Hardin, 599-GH; Robert W. Holmes, 599-RH; W. N. Holmes, 599-NH; Richard P. Howmiller, 599-PH; Jack L. King, 599-JK; David M. Kohl, 599-DK; Ching Kung, 599-CK;

Philip C. Laris, 599-PL; Nancy Lee, 599-NL; Maynard F. Moseley, 599-MM; C. H. Muller, 599-CM; W. H. Muller, 599-HM; William W. Murdoch, 599-WM; Henry I. Nakada, 599-HN; Michael Neushul, 599-MN; Elmer R. Noble, 599-EN;

Allan Oaten, 599-AO; Eduardo Orias, 599-EO; William K. Purves, 599-WP; I. K. Ross, 599-IR; Glenn M. Sharrock, 599-GS; Dale M. Smith, 599-DS, Beatrice M. Sweeney, 599-BS; George Taborsky, 599-TG; Edward L. ıTiplett, 599-ET; Bruce A. Wales, 599-BW; James L. Walters, 599-JW; Adrian M. Wenner, 599-AW.

BOTANY

Lower Division Courses

***20. General Botany. (5) I, II, III. Mr. Smith, Mr. Wales, and Staff**

Lecture, four hours; laboratory, three hours.

Unifying principles of biology utilizing plants as exemplary material; correlation of structure and function; genetics, selection, and evolution; energy transformation; growth of populations and the relation of plants to man; conservation.

Not open to credit toward graduation to students who have completed Biology 20 or Biology 20Z.

Upper Division Courses

103A. Plants of California. (4) II. The Staff

Lecture, two hours; laboratory, six hours. (May be taken for credit by Freshman and Sophomore students.)

An introduction to the important plant families and species of California and western North America, by means of field observations, plant collections, the use of manuals and floras, and the application of taxonomic principles.

103B. Plants of California. (4) III. Mr. Haller

Lecture, two hours; laboratory, three hours. (May be taken for credit by Freshman and Sophomore students.)

An introduction to the important plant communities and species of California and western North America, by means of extensive field observations, plant collection, the use of manuals and floras and the application of taxonomic and ecological principles.

110. Morphology of Bryophytes and Lower Vascular Plants. (4) II. Mr. Moseley

(Given alternate years.)

Lecture, two hours; laboratory, six hours. Prerequisite: Biology 1A–B–C, and consent of the instructor.

Study of the structure, life-cycles, anatomy, and relationships of Bryophytes and lower fossil and living vascular plants; conquest of the land.

111. Morphology of the Higher Vascular Plants. (5) Mr. Moseley

(Given alternate years—Winter, 1973.)

Lecture, three hours; laboratory, six hours. Prerequisite: Biology 1A–B–C, and consent of the instructor.

Study of the structure, life-cycles, anatomy, and relationships of the fossil and living higher vascular plants; evolution of ovule, angiospermy, and the flower.

113. Plant Anatomy. (3) I. Mr. Moseley

Lecture, three hours. Prerequisites: Biology 1A–B–C or consent of instructor, and concurrent enrollment in Botany 113L.

An introduction to the anatomy of vascular plants. Fundamental descriptive, developmental, and comparative aspects of anatomy.

113L. Laboratory in Plant Anatomy. (2) I. Mr. Moseley

Laboratory, six hours. Prerequisites: Concurrent enrollment in Botany 113, and consent of instructor.

Laboratory examination of the anatomy of vascular plants.

114. Ecological Plant Anatomy. (3) III. Mr. Moseley

Lecture, two hours; laboratory, three hours. Prerequisites: Botany 113.

The anatomical adaptations of vascular plants to environmental factors, principally to soil, water, light, and biotic factors.

120. Introductory Plant Physiology. (3) III. Mr. W. H. Muller

Lecture, three hours. Prerequisite: Biology 1A–B–C; organic chemistry, and concurrent enrollment in Botany 120L; and consent of instructor.

Functions of higher plants; photosynthesis, assimilation, water relations, and growth regulators.

120L. Laboratory in Introductory Plant Physiology. (2) III. Mr. W. H. Muller

Laboratory, six hours. Prerequisites: Consent of instructor, and concurrent enrollment in Botany 120.

Laboratory experiments in plant physiology.

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* Under general education requirement 5a, unit credit toward graduation will be allowed for only one of the three courses listed.

121. Plant Metabolism. (4) II. Mr. Purves

Lecture, four hours. Prerequisite: Biology 1A, and an organic chemistry course with laboratory.

Metabolic pathways, trapping and utilization of energy, chemical and physical regulatory systems.

123. Plant Physiology in Relation to Soil Factors. (2) Mr. W. H. Muller

(Not given 1971–72.)

Lecture, two hours. Prerequisites: Biology 1A and 1C; or consent of the instructor.

Development and characteristics of soils. Physiology of higher plants as affected by water, minerals, and other variables in the soil.

140. General Plant Ecology. (3) I. Mr. Wales, Mr. C. H. Muller

Lecture, two hours; laboratory or field, three hours. Prerequisite: Biology 1A–B–C. A course in Plant Taxonomy is highly recommended.

An introduction to the prinicples of plant ecology including analysis of the environment and social interrelations of plants.

141. Physical Plant Ecology. (3) II. Mr. Wales

Lecture, two hours; laboratory or field, three hours. Prerequisite: Biology 1A–B–C, Botany 140, and consent of the instructor.

The ecology of individuals, species, and communities of plants, with emphasis upon habitat measurement and responses.

142. Ecology of Biotic Communities. (3) III. Mr. C. H. Muller

Lecture, two hours; laboratory, three hours. Prerequisite: Biology 1A–B–C, Botany 140, and consent of the instructor.

The theories of community origin, structure, and function and the geographic basis of community distribution.

146. Plant Geography. (4) I. The Staff

Lecture, four hours. Prerequisite: Biology 1A or Biology 20 or Botany 20, and Botany 103A–B. Recommended: Geography 3 or Botany 140.

The distribution of communities, floristic groups and individual species of vascular plants as determined by environment, migration and evolution.

151. Taxonomy of Vascular Plants. (2) I. Mr. Smith

Lecture, two hours. Prerequisites: Biology 1A–B–C, Botany 103A–B, or consent of instructor, and concurrent enrollment in Botany 151L.

A systematic study of the characteristics and relationships of vascular plant families; the history, principles and methods of plant classification.

151L. Laboratory in the Taxonomy of Vascular Plants. (2) I. Mr. Smith

Laboratory, six hours. Prerequisite: Concurrent enrollment in Botany 151.

Laboratory examination of the families of vascular plants.

170. Phycology. (2) I. Mr. Neushul

Lecture, two hours. Prerequisites: Biology 1A–B–C, and concurrent enrollment in Botany 170L.

Classification, comparative morphology, and phylogeny of marine and freshwater algae, with a consideration of related ecological and physiological aspects.

170L. Laboratory in Phycology. (2) I. Mr. Neushul

Laboratory, six hours. Prerequisite: Concurrent enrollment in Botany 170.

A study of marine and fresh water algae in the laboratory and in the field.

171. Developmental Phycology. (2) II. Mr. Neushul

Lecture, two hours. Prerequisite: Botany 170–170L or consent of instructor; and concurrent enrollment in Botany 171L.

Morphogenesis and the causal basis of fern as exemplified by classical studies of algae.

171L. Laboratory in Developmental Phycology. (2) II. Mr. Neushul

Laboratory, six hours. Prerequisites: Concurrent enrollment in Botany 171, and consent of instructor.

Methods of developmental phycology; emphasis is placed on the experimental manipulation of living plant materials.

Graduate Courses

240. Environmental Measurement. (2) I. Mr. Wales, Mr. R. Holmes

Lecture, one hour; laboratory, three hours. Prerequisites: Previous courses emphasizing field work and consent of the instructors.

Measurement of parameters comprising the environmental complex experienced by plants in aquatic and terrestrial habitats. (Limited to eighteen students).

242. Biotic Competition. (3) Mr. C. H. Muller

(Not to be offered 1971-72.)

Lecture, one hour; laboratory, six hours. Prerequisite: a course in Ecology and consent of the instructor.

The mechanisms of interspecific and intraspecific competition and related interactions.

243. Chemical Interactions Between Plants. (3) II. Mr. C. H. Muller

Lecture, one hour; laboratory and field, six hours. Prerequisite: consent of instructor.

The role of metabolites and other chemical exudates in the ecology of plants.

252. Principles of Plant Systematics and Evolution. (3) I. Mr. Smith

Lecture, three hours. Prerequisite: At least one course in *both* taxonomy and genetics and consent of the instructor.

Variation and evolution in higher plants and the relation of these phenomena to taxonomic practice.

253. Experimental Methods in Plant Systematics. (3) II. Mr. Smith

Lecture, one hour; laboratory, six hours. Prerequisite: Botany 252 and consent of the instructor.

The application of laboratory procedures to studies of variation and evolution and the utilization of these data in plant systematics; consideration of race and species hybrids, cytotaxonomy, chemotaxonomy.

254. Field Studies of Variation in Natural Populations. (3) III.
Mr. Haller, Mr. Smith

Lecture, one hour; laboratory, six hours. Prerequisite: consent of the instructors, Botany 252 and one of the following: Botany 253, Biology 107. Recommended: a course in biometry.

Field studies of natural populations selected to illustrate the mechanisms of variation, evolution, and speciation.

261. Literature in Bioclimatology. (1) II.
Mr. Wales

Discussion, one hour. Prerequisite: Consent of the instructor.

Critical reading and presentation of recent literature in bioclimatology by staff and graduate students. Microclimates associated with vegetation are emphasized.

ZOOLOGY

Lower Division Courses

25. Human Anatomy. (3) I, II, III. The Staff

Lecture, three hours. Prerequisites: Concurrent enrollment in Zoology 25L.

The structure of the organ systems based on human material.

25L. Laboratory in Human Anatomy. (2) I, II, III. The Staff

Laboratory, eight hours. Prerequisite: Concurrent enrollment in Zoology 25.

Dissection of the cat.

40. Human Physiology. (4) I, II, III.
The Staff

Lecture, four hours. Prerequisites: Biology 1A or 20; Chemistry 1A or 25, or Physics 6A or 10; and concurrent enrollment in Zoology 40L.

An introduction to human physiology, with emphasis on control mechanisms.

40L. Laboratory in Human Physiology. (1) I, II, III. The Staff

Laboratory, three hours. Prerequisite: Concurrent enrollment in Zoology 40.

An elementary course in experimental physiology, with emphasis on mammals.

Upper Division Courses

100. Developmental Biology. (3) II.
Mr. Kohl, Mr. Triplett

Lecture, three hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 100L.

Descriptive embryology of vertebrates and an introduction to developmental mechanisms.

100L. Laboratory in Developmental Biology. (2) II. Mr. Kohl, Mr. Triplett

Laboratory, six hours. Prerequisites: Concurrent enrollment in Zoology 100.

Laboratory techniques in Developmental Biology.

101. Animal Cell Physiology. (4) II. Mr. Laris

Lecture, three hours; discussion, one hour. Prerequisite: Biology 1A–B–C, organic chemistry, Physics recommended.

Structure and function in cells, with emphasis on membrane and bio-electrical phenomena, motion and bio-luminescence in animal cells.

101L. Laboratory in Animal Cell Physiology. (2) III. Mr. Laris

Discussion, one hour; laboratory, three hours. Prerequisite: Concurrent enrollment in Zoology 101.

Experiments in transport, bioelectricity and motion.

104. Principles of Entomology. (2) III.
Mr. Wenner

Lecture, two hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 104L.

An introduction to the study of insects, their classification, structure, physiology, and ecology.

104L. Laboratory in Entomology. (3) III.
Mr. Wenner

Laboratory, six hours, collection, 1 hour. Prerequisites: Concurrent enrollment in Zoology 104.

Laboratory and field studies of insects.

105. Biology of Fishes. (2) II. Mr. Ebeling

Lecture, two hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 105AL.

An introduction to the study of fishes, emphasizing their structure and environmental responses.

105AL. Laboratory in the Biology of Fishes. (2) II. Mr. Ebeling

Laboratory, six hours. Prerequisite: Concurrent enrollment in Zoology 105.

Laboratory and field studies of fishes.

105BL. Problems in Ichthyology. (2) III.
Mr. Ebeling

Laboratory, six hours. Prerequisites: Zoology 105, 105AL, 161 or consent of instructor.

Original investigations of fishes: their systematics, ecology, design and function.

107. Comparative Vertebrate Anatomy. (2) I. Mrs. DeWolfe

Lecture, two hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 107L.

The adult anatomy of vertebrates: its evolutionary and adaptive significance.

107L. Laboratory in Comparative Vertebrate Anatomy. (2) I.
Mrs. DeWolfe

Laboratory, six hours. Prerequisite: Concurrent enrollment in Zoology 107.

Dissection of selected vertebrate types. Comparative morphology of organ systems.

109. Comparative Vertebrate Physiology. (3) I. Mr. W. N. Holmes

Lecture, three hours. Prerequisite: Zoology 107A–B.

A survey of the physiology of vertebrate organ systems with special emphasis on the control mechanisms.

109L. Laboratory in Comparative Vertebrate Physiology. (1) II. Mr. W. N. Holmes

Laboratory, three hours. Prerequisite: Zoology 109.

Selected experiments on the physiology of vertebrate organ systems.

111. General Parasitology. (3) I, III. Mr. Noble

Lecture, three hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 111L.

Biological aspects of parasitism: animal parasites of man and of other animals.

111L. Laboratory in Parasitology. (2) I, III. Mr. Noble

Laboratory, six hours. Prerequisite: Concurrent enrollment in Zoology 111.

The study of parasites from living and preserved material.

112A. Invertebrate Zoology. (4) I. Mr. Davenport

Lecture, two hours; laboratory, six hours. Prerequisite: Biology 1A–B–C, or Biology 20 with consent of the instructor.

An introduction to the classification, structure, life histories and habits of the major phyla of invertebrate animals, with emphasis on the marine fauna of the Santa Barbara area.

112B. The Invertebrate as an Experimental Animal. (3) II. Mr. Davenport

Lecture, three hours. Prerequisite: Zoology 112A, or its equivalent.

A consideration of the experimental advances that have been made with invertebrate animals in the control of development, organization, information transfer and behavior, with emphasis on the relation of these studies to the physiological ecology of groups.

112L. Problems in Invertebrate Zoology. (3) III. Mr. Davenport

Discussion, 1 hour; laboratory, six hours. Prerequisite: Zoology 112B. Admission by consent of the instructor only.

The experimental approach to invertebrates. Individual and group problems in development, behavior and physiological ecology.

113A. Natural History of the Vertebrates. (2) I. Miss Erickson

Lecture, two hours. Prerequisites: Biology 1A–B–C or equivalent.

The interrelations of land vertebrates with their environment: historical approaches, recent work on physical factors of the environment and species' range of tolerance to them; migration.

113AL. Field Course in Vertebrate Zoology. (1) I. Miss Erickson

Field work, three hours. Prerequisites: Zoology 113A, or concurrent enrollment.

Classification, field identification, and observation of mammals, birds, reptiles, and amphibians.

113B. Natural History of the Vertebrates. (2) II. Miss Erickson

Lecture, two hours. Prerequisite: Zoology 113A or equivalent.

The interrelation of land vertebrates with their environment: Interspecific interactions; Intraspecific interaction-territory, dominance hierarchy, sexual, parent-young, social organization, communication.

113BL. Field Course in Vertebrate Zoology. (1) II. Miss Erickson

Field work, three hours. Prerequisites: Zoology 113A; 113AL, and concurrent enrollment in Zoology 113B.

Field identification, methods of studying and experimenting with land vertebrates in the field and their use on individual field projects.

113C. Natural History of the Vertebrates. (2) III. Miss Erickson

Lecture, two hours. Prerequisite: Zoology 113A and 113B.

Population dynamics, habitat selection, and zoogeography.

113CL. Field Course in Vertebrate Zoology. (2) III. Miss Erickson

Field work, six hours. Prerequisite: Zoology 113A, AL, B, BL, and concurrent enrollment in Zoology 113C.

Continuation of Zoology 113BL field projects.

128. Vertebrate Physiological Cycles. (2) III. Mrs. DeWolfe

Lecture, two hours. Prerequisite: Zoology 109 or equivalent, passed or taken concurrently.

Analysis of seasonal changes in the endocrine and reproductive systems of native vertebrates. Physiological concomitants of the annual cycles, and environmental factors of dynamic importance.

128L. Laboratory in Vertebrate Physiological Cycles. (2) III. Mrs. DeWolfe

Laboratory, six hours. Prerequisite: Zoology 128 and consent of instructor.

Introduction to techniques for analyzing seasonal cycles in native vertebrates and concomitant environmental changes.

140. Ecology. (3) I, III. Mr. Murdoch, and Staff

Lecture, three hours. Prerequisite: Biology 1A–B–C; mathematics through introductory calculus or consent of instructor.

The biology of populations and communities of organisms. Introduction to population dynamics and the structure and function of ecological communities.

140AL–BL. Laboratory in Ecology. (2–2) I, II. Mr. Murdoch, and Staff

Laboratory, six hours. Both quarters must be taken. Prerequisite: Zoology 140 or its equivalent (may be taken concurrently) and consent of the instructor.

Laboratory and field analyses of the biology of populations and communities.

142A–B. Comparative Physiology. (2–2) I, II. Mr. Case and Mr. Childress

Lecture, two hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 142AL–BL.

Analysis of physiological principles by the comparative method with emphasis on Neurobiology (A) and Homeostatic Mechanisms (B).

142AL–BL. Laboratory in Comparative Physiology. (2–2) I, II.
Mr. Case and Mr. Childress

Laboratory, six hours. Prerequisite: Concurrent enrollment in Zoology 142A–B.

Laboratory exercises in comparative physiology with emphasis on invertebrates.

161. Systematics of Fishes. (2) I. Mr. Ebeling

Lecture, two hours. Prerequisites: Biology 1A–B–C and concurrent enrollment in Zoology 161L.

The systematics of fishes, emphasizing their evolution, classification, and distribution.

161L. Laboratory in the Systematics of Fishes. (2) I. Mr. Ebeling

Laboratory, six hours. Prerequisite: Concurrent enrollment in Zoology 161.

Laboratory studies in the systematics of fishes.

Graduate Courses

237. Animal Behavior. (4) I. Mr. Wenner

Lecture, three hours; discussion, one hour. Prerequisite: Zoology 104 or Zoology 112A–B; and a university course in physiology.

A comparative study of vertebrate and invertebrate behavior, including perception of the external world, patterns of behavior among individuals and in societies, and an analysis of various forms of communication.

237L. Laboratory in Animal Behavior. (3) II. Mr. Wenner

Laboratory, six hours; discussion, one hour. Prerequisite: Zoology 237.

An experimental analysis of selected behavioral patterns.

255. Comparative Endocrinology. (2). II.
Mr. W. N. Holmes

Lecture, two hours. Prerequisite: Zoology 109, or Zoology 142A or Biology 101. Qualified seniors may take the course with the consent of the instructor.

A detailed study of the hormonal regulatory mechanisms in vertebrates.

255L. Experimental Endocrinology. (2) III.
Mr. W. N. Holmes

Laboratory, six hours. Prerequisite: Zoology 255.

Techniques of experimental endocrinology.

BLACK STUDIES

Executive Committee

Floyd Gaffney, Ph.D., *Acting Associate Professor of Dramatic Art.*
James D. Smith, Ph.D., *Assistant Professor of Art (Chairman of the Executive Committee).*
Gerard G. Pigeon, M.A., *Acting Assistant Professor of Black Studies.*
Kane Anyanwu, M.A., *Lecturer in Black Studies.*
C. Edward Crowther, LL.M., *Lecturer in Black Studies.*
Robert Norris, B.A., B.S., *Lecturer in Black Studies.*
Sylvia M. Obradovic, Ph.D., *Lecturer in Black Studies.*
Joseph Reid, M.A., *Lecturer in Black Studies.*
William G. Carter, M.A., *Associate.*

The Department of Black Studies seeks to increase the general awareness and understanding of the Black experience through an examination of its contemporary and historical manifestations in various societies. To do this, it utilizes an interdisciplinary and cross-cultural approach and incorporates the active participation of faculty, students, and the wider community.

The major in Black Studies is designed to provide (1) a broad cross-cultural orientation focusing on the heritage and contemporary social situation of Black people (2) preparation for students planning careers either in secondary education or in community service, and (3) instructions for students who intend to do graduate work in Black Studies or allied areas in the social sciences, humanities and arts.

Preparation for the Major

A total of 8 courses of lower division work is required in preparation for the major. All students must complete Black Studies 1A–B–C and 2. Four courses from departments below with no more than 2 courses from any one department. Anthropology (Anthro. 2, 3 and 5 recommended); Geography; History (Hist. 4A–B–C recommended); Philosophy (1 or 5 recommended); Political Science (5, 10 and 45 recommended); Sociology (1 and 2 recommended). Courses taken from the above sequences in preparation for the Black Studies major may also, in certain instances, be used to fulfill the requirements of the general education program.

The Major

Required: 36 units of upper division Black Studies courses, twelve (12) of which may be taken in upper division work in closely related departments or fields. This should be worked out with the department adviser.

Lower Division Courses

1A. Introduction to the Cultures and Peoples of African Heritage: The United States of America. (4) I. The Staff

Part one of a three quarter sequence required as preparation for the major in Black Studies. Its specific focus in the United States and its objective is to acquaint the beginning student, mainly freshmen, with the historical and current social condition of Black people in North America.

1B. Introduction to the Cultures and Peoples of African Heritage: Latin America and the Caribbean. (4) III. Mr. Pigeon

Part two of a three quarter sequence required as preparation for the major in Black Studies. The history of Black peoples in Latin countries and in the Caribbean will be surveyed. Attention will be given to the differential adaptations made and the different levels of prosperity and influence achieved by Black people in this area of the world.

1C. Introduction to the Cultures and Peoples of African Heritage: The African Continent. (4) I. Mr. Anyanwu

Part three of a three quarter sequence required as preparation for the major in Black Studies. Selected areas of the African Continent will be the focus of detailed discussion and exploration. Particular attention will be given to those areas which were the sources of Black population in the "new world." Both the African past and contemporary Africa will be dealt with.

2. Group Exploration of Racism. (2) I, II, III. Mrs. Obradovic

Group discussions designed to explore, identify and understand the social and emotional pathology of racist orientations as they appear in everyday life. Discussions will focus on examinations of personal experiences, and extensive personal involvement and participation are expected. Not restricted to majors in Black Studies.

Upper Division Courses

100. The Social Institution of Communication. (4) III. The Staff

This course is designed to offer the student a basic conceptual framework for analyzing the role of communication and initiating goal-oriented action within the Afro-American community.

101. Black Legislators and Elected Officials in North America. (4) III. Mr. Norris

Prerequisites: Upper division standing or consent of instructor.

This course is designed to acquaint the student with the peculiar problems of access to, and incumbency in, political office for the Black American. The distinctive vantage point of the Black legislator on major current social problems and issues will be critically examined and explored. Extensive use will be made of visiting legislators and elected officials. Both historical and comparative analysis will be emphasized.

102. Black Radicals and the Radical Tradition. (4) III. Mr. Norris

Prerequisites: Upper division standing or consent of instructor.

This course will examine the tradition of radical thought and the relevance of this thought to the needs and interests of the Black community. Several hypotheses related to radical thought will be formulated and analyzed in light of current events. In addition the lives and works of individual Black Americans who fall in this tradition will be discussed.

104. Political Action in the Black Community. (4) II. Mr. Norris

An examination of actions and reactions of Black elected officials (in California) to public issues having particular relevance to the black community and the techniques and procedures adopted by the elected officials in response to community demands on these issues.

105. An Introduction to African Nationalism. (4) II. Mr. Anyanwu

An introduction to African Nationalism through comparative study of African Cultures.

110. Economic Theory, Practice and the Social Condition of the Black American. (4) III. The Staff

Prerequisites: Upper division standing or consent of instructor.

This course deals with national economic policy, the theory by which it is guided, and the manner in which this policy moulds the social condition of the Black American. Some attention will be given to the tradition in economic thought from which our national policy making derives and to comparative policy options.

115. African Philosophy. (4) III. Mr. Anyanwu

An examination of the philosophy of African peoples and its influence on religious, moral and customary ideas and practices.

120. Social Psychology of Racism. (4) I, II, III. Mr. Reid

Prerequisites: Upper division standing or consent of instructor.

This course will examine the effects of prejudice and discrimination on racists and the victims of racism. The social sources of racist attitudes and practices of racial discrimination will be examined, as well as the effect of these attitudes and practices on personal growth and development. Relevant research studies will be used and a comparative emphasis taken in the course.

128. Oral Tradition of the Afro-American Culture. (4) II. Mr. Pigeon

This course is designed to acquaint the student with the oral traditions of Afro-American culture as expressed in Black idioms and folklore.

129. Myth and Symbolism in Afro-American Literature. (4) II. The Staff

This course will explore the development of the mythic and symbolic imagination in some of the major works of Afro-American writers.

130. French African Literature and Literary Figures. (4) III. Mr. Pigeon

Prerequisites: Upper division standing or consent of instructor.

History of French African literature, with special emphasis on its development in Africa and the West Indies. Among those writers whose works will be dealt with are Bigaro Diop, Mongo Beti, Aime Cesaire and Leopold Senghor. A reading knowledge of French would be helpful for this course, though readings will be in English.

140. Ethnomusicology. (4) III. Mr. Carter

Prerequisites: Upper division standing or consent of instructor.

The development of music in non-European cultures will familiarize the student with the ethnic origins of music in the Caribbean; describe the historical development of this music, and analyze the aspects of it which derive from the African, Afro-American, and Latin American peoples.

150. Black American Businessmen, Professionals, and Administrators. (4) III. The Staff

Prerequisites: Upper division standing or consent of instructor.

This course will examine the typical professional and administrative roles, and avenues of access to them, occupied by the Black American. Social trends that impede, facilitate, and condition Black participation in these areas will be discussed. Relevant research findings will be combined with visiting lecturers. Both historical and comparative analysis will be emphasized.

160A. Analyses of the Racist Experience. (4) I. Rt. Rev. Crowther

Using the Jewish, Black and minority group experiences, the course will seek to offer historical perspectives for a contemporary related analysis.

160B. White Racism and the African Continent. (4) II. Rt. Rev. Crowther

A survey course examining the white man's self-image in Africa. The consequences of colonialism leading to the contemporary experience of white racism, especially in Southern Africa, will be reviewed. Special attention will be given to apartheid and the Portuguese territories.

160C. The African Liberation Movements. (4) III. Rt. Rev. Crowther

The African reaction to the experience of colonialism and apartheid. A survey of African revolutionary movements with special emphasis on contemporary issues. The course will emphasize the theoretical as well as the practical bases of African revolutionary movements.

195. Community Involvement. (4) I, II, III. The Staff

Prerequisites: Declaration of major in Department of Black Studies.

This is a field study course designed to acquaint the student with community organizations and their functions. Special emphasis will be devoted to the Black community and to those organizations in the broader community that directly affect its welfare.

197. Field Research. (4) I, II, III. The Staff

Prerequisites: Upper division standing or consent of instructor.

This course is designed to acquaint students with the actuality of selected aspects of the Black American experience. Selected areas of the local community will be the focus of research attention in the course. Research relevant accounts of this experience will be required of each student. Open only to students who have completed lower division course requirements.

198. Senior Seminar. (4) I, II, III. The Staff

Prerequisites: Upper division standing or consent of instructor.

Enrollment limited to senior Black Studies majors, by consent of instructor. Reading and discussion will be centered around a single topic or problem to be announced in advance by the instructor.

199. Independent Studies in Black Studies. (1–5) I, II, III. The Staff

Prerequisite: Senior standing.

Admission by special permission of the department only. For majors only. 199 courses are limited to not more than 5 units in one quarter and no more than 12 units total.

CHEMICAL AND NUCLEAR ENGINEERING

Henri J. Fenech, Sc.D., *Professor of Nuclear Engineering. (Vice Chairman for Nuclear Engineering.)*

John E. Myers, Ph.D., *Professor of Chemical Engineering.*

Owen T. Hanna, Ph.D., *Associate Professor of Chemical Engineering.* (*Chairman of Department.*)

A. Edward Profio, Ph.D., *Associate Professor of Nuclear Engineering.*

Robert G. Rinker, Ph.D.,*Associate Professor of Chemical Engineering.*

Duncan A. Mellichamp, Ph.D., *Assistant Professor of Chemical Engineering.*

Paul G. Mikolaj, Ph.D., *Assistant Professor of Chemical Engineering.*

G. Robert Odette, Ph.D., *Assistant Professor of Nuclear Engineering.*

Orville C. Sandall, Ph.D., *Assistant Professor of Chemical Engineering.*

UNDERGRADUATE PROGRAMS

Chemical Engineering

In preparing a program in chemical engineering a student should plan to meet the requirements in General Education common to all the engineering curricula (described under the heading "College of Engineering"), and should take the following courses:

Lower Division—(67 units): Che 3A–B, ChE 10, Chemistry 1A–B–C, Chemistry 1L A–B–C, EE 6A–B, Mathematics 3A–B–C, Mathematics 5A–B–C, ME 10, Physics 7A–B–C.

Upper Division—(62 units): ChE 110A–B, ChE 120A–B–C, ChE 128, Che 130A, Che 140A–B, ChE 150A–B, ChE 180A–B, ChE 182, Chemistry 113B–C, Chemistry 130A–B–C, NucE 115.

The requirements for admission as a freshman in the College of Engineering are listed earlier in this catalogue. Transfer students who have completed most of the lower division courses listed above and are entering the junior year of the chemical engineering program may take Ch.E. 10 in the fall quarter concurrently with Ch.E. 120A. No entrance examination is required.

Nuclear Engineering

The undergraduate curriculum in nuclear engineering provides an education in all the basic areas of nuclear engineering with emphasis on developments in the nuclear power industry. In addition to meeting the requirements in General Education common to all the engineering curricula, the student should take the following courses:

Lower Division—(66 units): NucE 3A–B, NucE 10, Chemistry 1A–B–C, Chemistry 1L A–B–C, EE 6A–B, Mathematics 3A–B–C, Mathematics 5A–B–C, ME 10, Physics 7A–B–C.

Upper Division—(63 units): NucE 111, NucE 112, NucE 115, NucE 120A–B, NucE 125, NucE 130A–B, NucE 140A–B, ChE 120A–B, Mathematics 124A–B–C, Physics 116A–B, Physics 117.

The requirements for admission to the program as a freshman are those of the College of Engineering. Transfer students who have completed the majority of the lower division courses listed above will be accepted in the program as juniors. There is no entrance examination.

GRADUATE PROGRAMS

Graduate programs are offered in chemical engineering leading to the degrees of Master of Science and Doctor of Philosophy. Although graduate degrees are not yet offered in nuclear engineering, Plan I for the M.S. degree in chemical engineering is a broad program which permits students to take a substantial portion of their course work in the nuclear field and to do their theses under the direction of the nuclear engineering faculty.

THE DEGREE OF MASTER OF SCIENCE

Requirements

1. Acceptance for admission to the Master of Science program is subject to the admission requirements of the Graduate Division. It is expected that most applicants will have obtained undergraduate degrees in chemical engineering. However, students with degrees in other branches of engineering or in science will be accepted with the provision that they take such undergraduate courses as prescribed by the department as prerequisites for an acceptable graduate course program in chemical engineering.

2. Knowledge of a foreign language will not be required for the M.S. degree in chemical engineering.

3. It is expected that most students will follow Plan I, although students with special backgrounds or requirements will be permitted, at the option of the Department, to follow Plan II. The details of these plans are as follows:

Plan I—Thirty units of course credit will be required of which approximately fifty per cent must be chosen from 200-level courses in chemical engineering. The remaining credits may be chosen from 100- or 200-level courses in chemical engineering or other branches of engineering or science, as approved by the Department. No graduate credit will be allowed for any course required for the B.S. degree in chemical engineering at Santa Barbara. In addition to meeting the course credit requirement, each student will be expected to pursue a research project, which may be either theoretical or experimental, and to describe the results of this research in a thesis. The final requirement will be that the student must present and defend the thesis in an oral examination.

Plan II—Thirty-six units of course credit will be required, of which approximately two-thirds must be chosen from 200-level courses in chemical engineering. The remainder may be chosen on the same basis as outlined under Plan I. Because of the importance of the individual research project in graduate education it is anticipated that the only persons allowed to follow Plan II will be those who have had adequate research experience prior to beginning graduate work or who plan to continue for doctoral work at Santa Barbara. The conclusion of a satisfactory M.S. program under Plan II will be marked by an oral examination of the candidate in those subjects studied in the graduate course program.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Requirements

1. Admission requirements are the same as for the degree of Master of Science.

2. There are no specific graduate course requirements. However, the student will be expected to plan and secure approval of a program of courses in chemical engineering and in related fields which will provide him with depth of understanding in the principal areas of chemical engineering.

3. A written preliminary examination will be administered by the Departmental Graduate Committee during the first year. Students unable to demonstrate clearly their capability for doctoral work at this point will be advised to pursue the M.S. degree with thesis (Plan I). At the conclusion of the M.S. program, the student's cumulative performance in courses, research and preliminary examination will be reviewed by the Department and a final decision made whether or not to allow him to continue a program for the Ph.D. A student who has earned an M.S. degree at another university will be required to take the preliminary examination as a basis for evaluation at UCSB.

4. A reading knowledge of one foreign language, which must be Japanese, French, Russian or German, will be required of all doctoral students.

5. At the end of the second year of graduate study if the student has continued to make satisfactory progress in his courses and has met the foreign language requirement, a doctoral committee will be recommended to supervise all further progress and examinations. This committee will then administer an oral examination on subject matter related to the research and on any additional material it considers desirable and will make a recommendation on advancement to candidacy.

6. Each student will be expected to pursue a research project which may be either theoretical or experimental and to describe the results of this research in a dissertation. The final requirement is that the student must present and defend his dissertation in an oral examination conducted by his doctoral committee. The period of time between advancement to candidacy and completion of the final oral examination is expected to be approximately one and one-half years.

CHEMICAL ENGINEERING

Lower Division Course

Ch.E. 3A–B. Computer Solutions of Engineering and Science Problems. (2–2) I, II. The Staff

Prerequisite: Math 3A–B (can be taken concurrently).

Application of computers to engineering and scientific problems. FORTRAN language programming, elements of numerical analysis including introduction to error sources, recursion, numerical calculus, root finding, etc. Students will use the computer. Ch.E. 3, EE 3, ME 3, and Nuc.E. 3 are identical courses.

4. Chemical Engineering Analysis. (2) I. Mr. Mellichamp

Introduction to the chemical engineering curriculum through a sequence of selected problems. Fortran programming ability will be developed in parallel to give the student background to utilize the digital computer in subsequent courses.

10. Introduction to Chemical Engineering. (4) I. Mr. Sandall

Prerequisite: Chemistry 1A–B–C; Math 3A–B–C.

Elementary principles of chemical engineering. The major topics discussed include material and energy balances, stoichiometry, and thermodynamics.

Upper Division Courses

110A–B. Chemical Engineeering Thermodynamics. (3–3) II, III. Mr. Mikolaj

Prerequisite: Math 5A.

The first and second laws of thermodynamics are used to predict changes of state in frictional processes. Volumetric and phase behavior of real gases and liquids in multicomponent systems are studied. Consideration is given to chemical equilibrium in reacting systems.

120A–B–C. Transport Processes. (4–3–3) I, II, III. Mr. Myers, Mr. Sandall

Prerequisite: Math 5A–B–C, Physics 7C.

Principles and applications of fluid mechanics, heat transfer and mass transfer in determining rates of transport processes.

128. Equilibrium Stage Processes. (3) II. Mr. Sandall

Prerequisite: Ch.E. 10, Ch.E. 110A.

Basic principles and design techniques of equilibrium-stage separation processes. Emphasis is placed on binary distillation, liquid-liquid extraction, and multicomponent distillation.

130A–B–C. Theoretical Methods in Chemical Engineering. (3–3–3) I, II, III.

Prerequisite: Math 5A–B–C Mr. Hanna

Coordination and extension of previous work in chemical engineering using advanced theoretical methods.

140A–B. Chemical Kinetics of Industrial Processes. (3–3) I, II. Mr. Rinker

Prerequisite: Ch.E. 110A–B; Ch.E. 120A–B–C.

Kinetics of homogeneous and heterogeneous reacting systems, with and without catalysis and its use in predicting chemical conversion in flow and nonflow reactors. Emphasis is placed on the behavior and design considerations of packed-bed reactors.

150A–B. Chemical Process Dynamics and Control. (3–3) II, III. Mr. Mellichamp

Prerequisite: Ch.E. 120A–B–C, EE 6A.

Fundamentals of chemical process dynamics and automatic control including servomechanism theory, transfer functions, block diagrams, frequency response, digital and analog computer simulation.

180A–B. Chemical Engineering Laboratory. (3–3) I, II, III. The Staff

Prerequisite: Ch.E. 110A–B; Ch.E. 120A–B–C.

Experiments in thermodynamics, fluid mechanics, heat transfer, mass transfer, reactor kinetics and chemical processing. Experimental design, analysis of results, and preparation of reports.

182. Design and Cost Principles of Chemical Processes. (4) III. Mr. Mikolaj

Prerequisite: Ch.E. 110A–B; Ch.E. 120A–B–C; Ch.E. 140A–B.

The use of chemical engineering and cost principles in solving comprehensive problems in the design of a chemical process.

198. Independent Studies in Chemical Engineering. (1–5) I, II, III, SS.

Prerequisite: Consent of Instructor. The Staff

Individual study, either experimental or theoretical, open to qualified seniors in chemical engineering.

Graduate Courses

210A–B. Advanced Thermodynamics. (3–3) I, III. Mr. Mikolaj

Prerequisite: Consent of instructor.

Advanced topics in thermodynamics including properties of real gases, solutions, phase and chemical equilibria, statistical mechanics, irreversible processes.

220A–B–C. Advanced Transport Processes. (3–3–3) I, II, III. Mr. Sandall, Mr. Myers

Prerequisite: Consent of instructor.

A study of the basic laws of momentum, energy and mass transport with emphasis on the prediction of transport rates in chemical engineering applications.

230A–B–C. Advanced Theoretical Methods in Chemical Engineering. (3–3–3) I, II, III. Mr. Hanna

Prerequisite: Consent of instructor.

Mathematical formulation and solution of problems drawn from the fields of fluid mechanics, heat and mass transfer, thermodynamics, kinetics and reactor design.

240A–B. Advanced Chemical Reactor Design. (3–3) II, III. Mr. Rinker

Prerequisite: Consent of instructor.

Following a review of the theory of reaction kinetics for catalyzed and non-catalyzed systems, detailed consideration is given to the design and performance of chemical reactors. Mathematical studies of stability and optimization are emphasized in relationship to mass, energy and momentum transport.

250. Advanced Process Dynamics and Control. (3) I. Mr. Mellichamp

Prerequisite: Consent of instructor.

Theoretical and experimental determination of chemical process dynamics, state variable design techniques applied to multivariable systems, analysis of sampled data systems with computer control applications, non-linear system design.

252. Optimum Control Theory. (3) III. Mr. Mellichamp

Prerequisite: Consent of instructor.

The application of recent theoretical developments to the design of optimum control systems. Introduction to stochastic processes, on-line characterization of time-varying processes, design of adaptive systems, optimum control.

260. Nuclear Power Systems Design. (4) III. Mr. Fenech

Prerequisite: Consent of instructor.

A team work design and optimization of a nuclear power system using the latest methods of analysis and currently available computer programs.

290. Seminar. (.5) I, II, III. The Staff

Research presentations by graduate students. May be repeated for credit.

594AA–594ZZ. Special Topics. (1–4) I, II, III, SS. The Staff

Special seminar on research subjects of current interest. Each faculty member has his own course identified by a two letter code as follows: O. T. Hanna, 594 HA; D. A. Mellichamp, 594ME; P. J. Mikolaj, 594MI; J. E. Myers, 594MY; R. G. Rinker, 594RI; O. C. Sandall, 594SA.

596AA–596ZZ. Directed Reading and Research. (2–4) I, II, II, SS. The Staff

A written proposal for each tutorial must be approved by the Department Chairman and filed with the Graduate Division. Each faculty member has a unique letter designation, which is the same as for course No. 594AA.

598AA–598ZZ. Master's Thesis Research and Preparation. (0–12) I, II, III, SS. The Staff

Only for research underlying the thesis and writing the thesis. Not applicable to course requirement for M.S. degree. Each faculty member has a unique letter designation, which is the same as for course No. 594AA.

599AA–599ZZ. Ph.D. Dissertation Preparation. (0–12) I, II, III, SS. The Staff

Only for preparation of the dissertation. Each faculty member has a unique letter designation, which is the same as for course No. 594AA.

NUCLEAR ENGINEERING

Lower Division Course

1. Nuclear Energy in Contemporary Society. (2) II. Mr. Profio

Fundamentals of nuclear energy and radiation for the concerned citizen. Principles of fission and fusion reactors and nuclear explosives. Basis of radiation protection standards. Environmental effects of producing electric power. Weapons effects and arms control.

N.E. 3A–B. Computer Solutions of Engineering and Science Problems. (2–2) I, II. The Staff

Prerequisites: Math 3A–B (can be taken concurrently).

Application of computers to engineering and scientific problems. FORTRAN language programming, elements of numerical analysis including introduction to error sources, recursion, numerical calculus, root finding, etc. Students will use the computer. Ch.E. 3, EE 3, ME 3 and Nuc.E. 3 are identical courses.

10. Introduction to Nuclear Engineering. (3) III. Mr. Profio

Prerequisites: Math 5A–B, Physics 7A–B or equivalent.

A survey course introducing the various aspects of nuclear engineering. Main topics covered are: fission and fusion energy. Nuclear reactor principles. Nuclear material. Reactor design and operation. Radiation shielding. Power generation and nuclear propulsion.

Upper Division Courses

111. Isotopes and Applied Radiation. (3) I. Mr. Odette

Radioactive and machine sources of radiation. Interaction with matter. Chemical and biological effects. Shielding and radiation protection. Applications of isotopes and radiation in medicine, research and industry.

112. Principles of Nuclear Energy Conversion. (3) II. Mr. Odette

Prerequisites: Chem 1C, Math 3C.

Thermodynamic principles and laws with emphasis on applications to the problems of nuclear engineering. Relations of macroscopic and microscopic approaches discussed along with some results from statistical mechanics.

115. Modern Materials Science. (3) III. Mr. Odette

Prerequisites: Physics 7C.

Principles underlying the mechanical, physical, and chemical behavior of ceramics, polymers and metals. Crystal and defect structure, equilibrium and non-equilibrium phase relations, kinetics, flow fracture oxidation and corrosion.

120A–B. Nuclear Assembly Measurements Laboratory. (3–3) I, II. Mr. Profio

Prerequisites: Math 5C, Physics 7C or equivalent.

Measurement of nuclear radiation and nuclear properties in reactors. Topics include: radiation protection, measurement of radioactive decay, range of charged particles, gamma rays interaction, neutron cross-sections, neutron flux, conversion ratio, resonance absorption and coincidence techniques.

125. Neutronics Laboratory. (4) III. Mr. Profio

Prerequisites: Nuc.E. 120A–B or consent of instructor.

Measurements of neutronic behavior in subcritical and critical reactors, investigating neutron diffusion, kinetics, reactor operation.

130A–B. Nuclear Systems Engineering. (4–4) II, III. Mr. Fenech

Prerequisites: Nuc.E. 140A, Math. 124A–B–C or equivalent, EE 6A–B.

Nuclear power cycles. Heat removal and fluid flow in nuclear systems. Power and temperature distribution in core. Thermal stresses and fatigue in components. Nuclear fuel elements design and performance. Flow induced vibrations. Various reactor concepts.

140A–B. Nuclear Systems Theory. (4–4) I, II. Mr. Fenech

Prerequisites: Math. 124A–B–C.

The fundamental physical principles underlying the operation of nuclear systems in the framework of the diffusion theory of neutrons.

198. Independent Studies in Nuclear Engineering. (1–5) I, II, III, SS. The Staff

Prerequisite: Consent of instructor.

Individual study under a faculty supervisor. This course gives an opportunity to qualified senior students to pursue or initiate some independent experimental or theoretical research.

Graduate Courses

210A–B–C. Nuclear Materials, Fuel Elements. (3–3–3) I, II, III. Mr. Odette

Prerequisite: Nuc.E. 115.

Properties of nuclear materials. Radiation effects. Design, fabrication and performances of nuclear fuel elements. Advanced developments.

220. Numerical Methods of Nuclear Systems Analysis. (3) II. Mr. Profio

Prerequisites: Ch.E. 3A–B, Nuc.E. 140.

Numerical methods of solution of nuclear engineering problems. Applications using the available nuclear computer codes developed in industry.

230. Nuclear Power Economics. (3) I. Mr. Fenech

Prerequisites: Nuc.E. 130, Nuc.E. 140 or equivalent.

Actual and future needs for nuclear power. The various components of nuclear power. Nuclear fuel cycle costs. Nuclear materials utilization.

594AA–594ZZ. Special Topics. (1–4) I, II, III, SS. The Staff

Special seminar on research subjects of current interest. Each faculty member has his own course identified by a two letter code as follows: A. E. Profio, 594PR; G. R. Odette, 594OD; H. J. Fenech, 594FE.

596AA–596ZZ. Directed Reading and Research. (2–4) I, II, III, SS. The Staff

A written proposal for each tutorial must be approved by the Department Chairman and filed with the Graduate Division. Each faculty member has a unique letter designation, which is the same as for course No. 594AA.

598AA–598ZZ. Master's Thesis Research and Preparation. (0–12) I, II, III, SS. The Staff

Only for research underlying the thesis and writing the thesis. Not applicable to course require- unique letter designation, which is the same as for ment for M.S. degree. Each faculty member has a course No. 594AA.

599AA–599ZZ. Ph.D. Dissertation Preparation. (0–12) I, II, III, SS. The Staff

Only for preparation of the dissertation. Each faculty member has a unique letter designation, which is the same as for course No. 594AA.

CHEMISTRY

Bernard R. Baker, Ph.D., *Professor of Chemistry.*
Ernest L. Bickerdike, Ph.D., *Professor of Chemistry.*
[5]Thomas C. Bruice, Ph.D., *Professor of Chemistry.*
Clifford A. Bunton, Ph.D., *Professor of Chemistry (Chairman of the Department).*
Robert H. DeWolfe, Ph.D., *Professor of Chemistry.*
Glenn H. Miller, Ph.D., *Professor of Chemistry.*
Roger C. Millikan, Ph.D., *Professor of Chemistry.*
Glyn O. Pritchard, Ph.D., *Professor of Chemistry.*
Bruce F. Rickborn, Ph.D., *Professor of Chemistry.*
Pierce W. Selwood, Ph.D., *Professor of Chemistry.*
Hazel W. Severy, M.A., D.Sci.O., *Professor of Chemistry, Emeritus.*
[3]Curtis B. Anderson, Ph.D., *Associate Professor of Chemistry.*
Arthur M. Crestfield, Ph.D., *Associate Professor of Chemistry.*
J. Thomas C. Gerig, Ph.D., *Associate Professor of Chemistry.*
David O. Harris, Ph.D., *Associate Professor of Chemistry.*
Bernard Kirtman, Ph.D., *Associate Professor of Chemistry.*
Richard M. Martin, Ph.D., *Associate Professor of Chemistry.*
Henry W. Offen, Ph.D., *Associate Professor of Chemistry.*
Donald H. Aue, Ph.D., *Assistant Professor of Chemistry.*
Michael T. Bowers, Ph.D., *Assistant Professor of Chemistry.*
Peter C. Ford, Ph.D., *Assistant Professor of Chemistry.*
Thomas M. Hooker, Jr., Ph.D., *Assistant Professor of Chemistry.*
William C. Kaska, Ph.D., *Assistant Professor of Chemistry.*
John H. Kennedy, Ph.D., *Assistant Professor of Chemistry.*
Douglas C. McCain, Ph.D., *Assistant Professor of Chemistry.*
William E. Palke, Ph.D., *Assistant Professor of Chemistry.*
[4]Daniel V. Santi, Ph.D., *Assistant Professor of Chemistry.*

The curricula in chemistry provide excellent preparation for careers not only in chemical research and teaching but also in medicine, industrial and environmental law and business management. The program leading to the bachelor's degree in chemistry meets the standards recommended by the American Chemical Society for professional training in chemistry. High school students should note that they will be better prepared for this degree if their high school program includes chemistry, mathematics, physics, and courses in either German or Russian.

Counseling

Each entering student will be assigned an adviser who may be consulted on any matter pertaining to the student's University work. The adviser should approve the student's program. Waivers and substitutions of chemistry requirements must be discussed with the adviser.

THE DEGREE OF BACHELOR OF ARTS

General Education

In addition to fulfilling the General Education requirements of the College of Letters and Science for the bachelor's degree, the student must complete the following requirements which satisfy sections 5 (Natural Science and Mathematics) and 6 (Electives): Biology 20, 20Z, 1A, Environmental Studies 2, or Botany 20, Math 3A–B–C, Physics 8A, AL, B, BL, C, CL, or 1, 2, 2L, 3, 3L. The mathematics and physics courses are required in preparation for the major and may not be taken on the Pass/Not Pass option. The Chemistry curriculum requires one year of German or Russian which is normally fulfilled within section 2, Foreign Language.

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[3] Absent on Leave Spring 1972
[4] Absent on Leave 1971–72
[5] Absent on Leave in Residence 1971–72

The Major

Chemistry 1A–B–C, 1AL–BL–CL, 130A–B–C, 6A–B–C, 5, 5L, 113A–B–C, 114A–B. Additional courses to complete the major in chemistry will be taken by the student after individual consultation with his adviser. Students should obtain a chemistry major program form from the department. A minimum of 12 additional units will normally be taken, including one organic chemistry course, one inorganic chemistry course and one upper division laboratory course. A student who has transferred from another school may also use the chemistry major program form to plan his chemistry curriculum.

Free Electives

Although students may choose any courses to satisfy this requirement, they are urged to consider Chem 199 and other courses in Chemistry, Biochemistry, Mathematics (e.g. 4A–B, 119A), Physics, Geochemistry (Geology 125) and Chemical Engineering. These units may also be applied towards minors in other fields. A minor in Biological Sciences is recommended for chemistry students preparing for medical careers. A minor in Economics is recommended for students interested in business or business law.

THE DEGREE OF BACHELOR OF SCIENCE

General Education

The requirements for the sections on page 66 are: section 1, 8 units; section 2, 0–12 units; sections 3 and 4, 31 units distributed approximately equally between them. The student must complete the following requirements under section 5: Biology 20, 20Z, 1A, Environmental Studies 2, or Botany 20; Math 3A–B–C, Math 5A–B; and Physics 1, 2, 2L, 3, 3L, 4, 4L, or Physics 8A, AL, B, BL, C, CL. Math and Physics are required in preparation for the major and may not be taken on Pass/Not Passed option. The Chemistry curriculum requires one year of German or Russian which is normally fulfilled within section 2, Foreign Languages.

The Major

Chemistry 1A–B–C, 1AL–BL–CL, 130A–B–C, 6A–B–C, 5, 5L, 113A–B–C, 114A–B. Additional courses to complete the major in chemistry will be taken by the student after individual consultation with his adviser. Students should obtain a chemistry major program form from the department. A minimum of 18 additional units will normally be taken, including two physical chemistry courses, one organic chemistry course, one inorganic chemistry course and one upper division laboratory course. A student who has transferred from another school may also use the chemistry major program form to plan his chemistry curriculum.

Free Electives

Although students may choose courses to satisfy this requirement, they are urged to consider Chemistry 199 and other courses in Chemistry, Biochemistry, Mathematics (e.g. 119A), Physics, Geochemistry (Geology 125) and Chemical Engineering.

SUGGESTED COURSE SCHEDULE FOR FRESHMEN STUDENTS

in the Chemistry Bachelor of Arts or Bachelor of Science Program

	1st quarter		2nd quarter		3rd quarter
Units	Course	Units	Course	Units	Course
4	Chem 1A, 1AL	4	Chem 1B, 1BL**	4	Chem 1C, 1CL**
4	Math 3A	4	Math 3B	4	Math 3C
4	English 1A	4	English 1B	*4	Physics 2
–	General Education	*4	Physics 1	*1	Physics 2L
				–	General Education

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* BA and BS candidates must take Physics 8A, AL, B, BL, C, CL in the sophomore year, if they do not

THE MINOR IN CHEMISTRY

Chemistry 1A–B–C, 1AL–BL–CL, 8A–B, 6A, 113A and an additional 6–7 units from Chemistry 5, 5L, 113B–C, or other upper division chemistry courses including biochemistry. Chemistry 130A–B–C (9 units) may be substituted for Chemistry 8A–B and 3 of the additional units.

THE DEGREE OF MASTER OF ARTS

See *The Graduate Division Announcement.*

1. The M.A. in chemistry may be attained under either Plan I (thesis based on research) or Plan II (examination).

2. The candidate must demonstrate a reading knowledge of scientific literature in one of three foreign languages chosen from German, French and Russian.

THE DOCTORAL PROGRAM

See *The Graduate Division Announcement.*

The Ph.D. may be obtained in any one of the special fields of Physical Chemistry, Bio-Organic, Organic and Inorganic Chemistry. A program in Chemical Physics is offered in conjunction with the Department of Physics and the College of Engineering.

1. There is no formal unit requirement for the Ph.D. In addition to courses within his area of specialization, the candidate will normally take at least one advanced course in each of two areas outside his field. However, in the Chemical Physics Program a basic sequence of courses in chemistry and physics is prescribed.

2. Progress toward the degree is followed by a series of cumulative examinations in the field of specialization; six examinations are given each year.

3. The candidate must demonstrate a reading knowledge of scientific German or Russian.

TEACHING CREDENTIALS

Either a major or a minor in chemistry may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of Chemistry and in the Graduate School of Education.

Candidates who elect chemistry as their teaching major must complete the major as specified. Students interested in chemistry as a teaching minor should confer with the department chairman.

CHEMISTRY

Lower Division Courses

1A–B–C. General Chemistry. (3–3–3)
I, II, III. Mr. Anderson, Mr. Kennedy,
Mr. Millikan, Mr. Selwood

Lecture, three hours. Prerequisite: one year of high school algebra and exponents and logarithms. High school chemistry and physics are strongly recommended. Knowledge of the calculus is useful but not necessary. Concurrent registration in 1AL, 1BL, and 1CL is required. This course is required of all majors in chemistry and most other fields of science or technology. Chemistry 1A may be used to satisfy the General Education requirement in Natural Science, section 5b or c.

A: Stoichiometry, gas laws and kinetic theory, atomic and molecular structure, the periodic table, nature of solids, liquids, and solutions, phase equilibria. B: Thermodynamics (1st and 2nd Laws), reaction kinetics, thermochemistry, oxidation and reduction, electrochemistry, chemical equilibrium. C: Structure and dynamics of the elements and their compounds.

1AL–BL–CL. General Chemistry Laboratory. (1–1–1) I, II, III.
The Staff (Mr. Anderson, Mr. Kennedy,
Mr. Ford in charge)

Laboratory, four hours. Prerequisite: concurrent registration in 1A–B–C or consent of instructor.

Quantitative measurements demonstrating principles and developing laboratory technique. Inorganic qualitative analysis. Inorganic synthesis.

Contemporary Natural Science (Natural Science 1A–B–C). (4–4–4) Mr. Ellings,
Mr. Anderson, Mr. Purves

Sequence beginning I .

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take Physics 1, 2, 2L in freshman year. Physics 1, 2, 2L are intended for freshmen only.

** Qualified students may elect the laboratory sequence 2BL, 2CL in place of 1BL, 1CL. Completion of this sequence also satisfies the Chemistry 5, 5L requirement.

2BL. General and Analytical Chemistry Laboratory. (2) II. Mr. Kennedy

Lecture, one hour, laboratory six hours. Prerequisite: Chem 1A, 1AL (B grades minimum) or consent of instructor.

Principles of quantitative analysis. Calculations for analytical chemistry emphasizing application to chemical equilibrium. Laboratory techniques in chemical analysis and synthesis. Measurement of chemical equilibrium and reaction kinetics.

2CL. General and Analytical Chemistry Laboratory. (2) III. Mr. Kennedy

Lecture, one hour, laboratory, six hours. Prerequisite: Chem 1B, 2BL.

Quantitative and Qualitative analysis with applications to environmental problems. Quantitative Volumetric methods. Advanced synthesis techniques.

5. Quantitative Analysis. (2) I, II, III. Mr. Bickerdike, Mr. Kennedy

Lecture, two hours. Prerequisite: Chem 1A–B–C, or consent of instructor.

Theory and technique of analytical chemistry, emphasizing the application of chemical equilibrium.

5L. Quantitative Analysis Laboratory. (2) I, II, III. The Staff (Mr. Bickerdike and Mr. Kennedy in charge)

Laboratory, eight hours. Prerequisite: concurrent registration in Chem. 5 or consent of instructor.

Gravimetric and volumetric analysis, spectrophotometric, and electroanalytical techniques.

6A–B–C. Laboratory Methods of Organic Chemistry. (2–2–2) A, B: I, II, III; C: III. The Staff (Mr. Anderson, Mr. Baker, Mr. Bunton in charge)

Chem 6A: lecture, one hour; laboratory, four hours. Chem 6B–C: laboratory, eight hours. Prerequisite: for 6A: Chemistry 130A or 8A (may be taken concurrently). Students whose requirements include only 6A and 6B, are urged to take 6A in the winter quarter.

Distillation, crystallization, extraction, determination of physical properties, organic synthesis, identification of organic compounds, instrumental methods in organic chemistry.

8A–B. Fundamentals of Organic Chemistry. (3–3) I, II; II, III. Mr. Baker, Mr. Bruice, Mr. Santi

Lecture, three hours. Prerequisite: Chem 1A or consent of instructor.

Basic organic chemistry: structure and chemical bonding, nomenclature, classes of organic compounds, organic reactions, stereochemistry, natural products, elementary biochemistry. Designed primarily for biological sciences majors.

20. Chemistry: Its Methods and Implications for Society. (3) I, II. The Staff

Lecture, three hours. No prerequisite.

Detailed discussion of various areas where chemistry and/or chemists impinge vitally on society. Areas that might be included are environmental chemistry, medicinal chemistry, relations between basic research and technology, etc. Quantitative concepts will be used but without complicated mathematical manipulations.

25. Introductory Chemistry. (4) I, II, III. The Staff (Mr. Miller in charge)

Lecture, four hours.

This course is designed to meet the general education requirement in the physical sciences. Designed for the non-major student with special emphasis on the important aspects of modern chemistry.

81A–B–C. Chemical Aspects of the Physical and Social Environment. (3) I. (1–3) II, III. Mr. Ford

Lecture, one hour, seminar, two hours. Prerequisite: Chem 1A–B–C, 1AL, BL, CL, or consent of instructor.

Studies of different chemical aspects of the physical and social environment (e.g. pollution, medicine, industrial chemistry) linked by a broad study theme selected by the instructor. The course will include one lecture per week by the instructor and/or guest lecturers on this broad study theme and weekly two hour seminars, in which oral reports will be made by the students concerning progress on their quarterly projects and/or weekly assignments. Open only to lower division students.

101. Problems in Environmental Chemistry. (3) III. Mr. Martin

Lecture, three hours. Prerequisite: ES1 and 5, or one of the following: Chem. 1B, Chem. 25, or Natural Science 1B.

The chemistry of air, water, and soil pollution: sources and methods of control; chemical dynamics in the environment; chemical and instrumental methods of analytical pollution monitoring; chemical quality standards and their maintenance.

Upper Division Courses

113A–B–C–D. Physical Chemistry. (3–3–3–3) **A–1, B–II, C–III, D–1, II or III.** Mr. Martin, Mr. Millikan, Mr. Palke, Mr. Pritchard

Lecture, three hours. Prerequisite: Chem. 1A–B–C, Math. 3A–B–C and Physics 1, or by consent of instructor. Physics 3 is recommended for 113B.

(A) Laws of thermodynamics; free energy and chemical equilibria; changes of state; (C) Kinetic theory of gases; chemical kinetics; (B) Introduction to Wave Mechanics; atomic structure and spectra; the chemical bond; molecular spectra and structure; (D) Solution and phase equilibria; electrochemistry; surface chemistry, polymers.

113AG–BG–CG–DG. Physical Chemistry. (3–3–3–3) AG: I, BG: II, CG: III, DG: II & III. Mr. Martin, Mr. Millikan, Mr. Palke, Mr. Pritchard

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 113A–B–C or the respective part thereof in this institution.

114A–B. Physical Chemistry and Instrumental Analysis Laboratory. (4–4) A: III, B: I. Mr. Hooker, Mr. Kennedy

Lecture, two hours; laboratory, eight hours. Prerequisite: Chem. 114A: Chem. 5, 5L or equivalent, Chem. 113A concurrently with 113B.

Lecture: Technique of physical measurement, error analysis and statistics, special topics. Laboratory: Experiments involving ultraviolet, infrared, and nuclear magnetic resonance spectroscopy; dipole moment, magnetic susceptibility, light scattering, viscosity of polymers; calorimetry, gas laws, thermal conductivity, phase diagrams; solution kinetics; electroanalytical and chromatographic techniques.

115A–B–C. Fundamentals of Quantum Chemistry. (3–3–3) A–I, B–II, C–III. Mr. Bowers

Lecture, three hours. Prerequisite: Chemistry 113A–B–C, Math 4A or consent of instructor.

(A) Introduction to Quantum Mechanics-Postulatory Approach; particle in box, on ring, harmonic oscillator; linear operator theory, matrix algebra; hydrogen atom; perturbation theory, variation theory; applications. (B) Molecular orbital theory and valence bond theory; Huckel theory (secular equn.) applications to conjugated systems, electronic spectra, and term symbols; introduction to infrared, Raman, and microwave spectroscopy. (C) Introduction to NMR, EPR, Group Theory; applications.

115AG–BG–CG. Fundamentals of Quantum Chemistry. (3–3–3) AG: I, BG: II, CG: III. Mr. Bowers

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 115A–B–C in this institution.

117. Statistical Thermodynamics. (3) III. Mr. Hooker, Mr. Kirtman, Mr. Offen

Lecture, three hours. Prerequisite: Chem. 113A–B–C or consent of instructor.

Fundamentals of statistical thermodynamics, partition functions for ideal gases and crystals, quantum statistics, calculations of thermodynamic properties.

117G. Statistical Thermodynamics. (3) III. Mr. Hooker, Mr. Kirtman, Mr. Offen

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 117 at this institution.

118. Photochemistry and Radiation Chemistry. (3) III. Mr. Offen

Lecture, three hours. Prerequisite: Chem. 113B.

Interaction of light and matter, reaction paths from electronically excited molecules, flash photolysis, high energy radiation.

118G. Photochemistry and Radiation Chemistry. (3) III. Mr. Offen

Prerequisite: Chem. 113B.

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 118 at this institution.

120. Polymer Chemistry. (3) II. Mr. Miller

Lecture, three hours. Prerequisite: Chem. 1A–B–C, 1AL, BL, CL, 130A–B–C.

Mechanism and kinetics of polymerization: Vinyl, condensation, and diene polymers; ionic polymerizations; block and graft polymers; copolymerization; physical chemistry of high polymers; polymer degrations; radiation chemistry of polymer systems.

123. Fundamentals of Environmental Chemistry. (3) III. The Staff

Lecture, two hours, discussion, two hours. Prerequisite: Chem. 1A–B–C, 1AL, BL, CL, 8A–B, or 130A–B–C, 113A–B.

Chemical nature of pollution sources. Principles of analytical monitoring and control of pollution sources. The chemistry of pollutants in the environment. Chemical quality standards and chemical monitoring of the environment.

130A–B–C. Elementary Organic Chemistry. (3–3–3) A: I; B: II; C: III. Mr. DeWolfe, Mr. Rickborn

Lecture, three hours. Prerequisite: Chemistry 1A–B–C, or consent of instructor. Chemistry 6A is usually taken concurrently with Chemistry 130A.

Structure and properties of organic compounds, nomenclature, classes of organic compounds, chemical bonding, synthetic organic chemistry, chemistry of natural products.

130AG–BG–CG. Elementary Organic Chemistry. (3–3–3) AG: I, BG: II, CG: III. Mr. DeWolfe, Mr. Rickborn

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 130A–B–C at this institution.

131A–B–C. Advanced Organic Chemistry. (3–3–3) A: I; B: II; C: III. Mr. Aue and Mr. Rickborn

Lecture, three hours. Prerequisite Chem. 130A–B–C and 113A–B–C, or consent of instructor. **A:** Physical organic chemistry-mechanism, stereochemistry, structure and reactivity. **B** and **C:** Mechanism and synthesis in organic chemistry.

131AG–BG–CG. Advanced Organic Chemistry. (3–3–3) AG: I, BG: II, CG: III. Mr. Aue and Mr. Rickborn

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 131A–B–C in this institution.

134. Advanced Organic Laboratory. (3) III. Mr. Aue

Lecture, one hour; laboratory, eight hours. Prerequisite: Chem 130A–B–C and Chem 6A–B–C or consent of instructor.

Methods of organic reactions and synthesis; techniques of product isolation.

136. Qualitative Organic Analysis. (2) II. Mr. DeWolfe, Mr. Rickborn

Lecture, 2 hours. Prerequisite: Chem 130A–B–C and Chem 6A–B–C, or consent of instructor.

Identification of unknown organic compounds; separation of mixtures; derivatives, instrumental methods; micro techniques.

136L. Qualitative Organic Analysis Laboratory. (2) II. Mr. DeWolfe, Mr. Rickborn

Laboratory, eight hours. Prerequisite: concurrent registration in Chem. 136.

141. Bio-Organic Reactions. (3) I, II, III.
Mr. Bruice

Lecture, three hours. Prerequisite: Chem 130A–B–C, Chem 113A–B–C; or consent of instructor. Biology 108 is recommended.

A lecture course in bio-organic mechanisms. The types of chemical transformations of importance in biochemical reactions will be discussed from a physical organic point of view. Mechanisms of nucleophilic displacement reactions on carbonyl and pentacovalent phosphorous, hydration reactions, chemical reactions of cofactors, enzymic catalysis and enzyme models are among the topics considered.

151. Advanced Analytical Chemistry.
(3) II or III.
Mr. Bickerdike, Mr. Kennedy

Lecture, three hours. Prerequisite: Chem. 5.

A detailed discussion of principles of analytical chemistry with emphasis on acid-base and redox equilibria, and on separation.

152. Analytical Chemistry of the Elements.
(3) II or III. Mr. Bickerdike

Lecture, three hours. Prerequisite: Chem. 5

The analytical chemistry of a selected number of elements, including many of the less familiar elements.

173A–B. Advanced Inorganic Chemistry.
(3–3) A: I; B: II. Mr. Ford, Mr. Kaska

Lecture, three hours. Prerequisite: Chem. 113A–B–C or consent of instructor. 173A is not a prerequisite for 173B.

A: Inorganic and organometallic chemistry of the non-transition elements and their compounds: descriptive reaction chemistry, bonding theory, stereochemistry and introductory spectroscopy. B: Inorganic and organometallic chemistry of the transition metals and their complexes: introductory ligand field theory and spectroscopy, descriptive chemistry, and reaction mechanisms.

173AG–BG. Advanced Inorganic Chemistry.
(3–3) AG: I, BG: II.
Mr. Ford, Mr. Kaska

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 173A–B in this institution.

174. Inorganic Synthesis and Laboratory Techniques. (3) III.
Mr. Kaska

Lecture, 1 hour; laboratory, eight hours. Prerequisite: 173A–B (may be taken concurrently) or consent of instructor.

Methods of inorganic reactions and synthesis. Spectroscopic indentification of inorganic compounds.

175. Physical-Inorganic Chemistry. (3) III.
Mr. Ford

Lecture, three hours. Prerequisite: 173A–B or consent of instructor.

Bonding theory, thermodynamics, and structure of inorganic compounds. Applications of physical techniques to the study of inorganic (and organometallic) reactions and their mechanisms.

175G. Physical-Inorganic Chemistry. (3) III.
Mr. Ford

Lecture, three hours. Open only by consent of the Chemistry Graduate Advisor to graduate students who have not taken 175 in this institution.

181A–B–C. Chemical Aspects of the Physical and Social Environment. (3) I.
(1–3) II, III. Mr. Ford

Lecture, one hour, seminar, two hours. Prerequisite: Chem. 1A–B–C, 1AL, BL, CL, 130A–B or 8A–B or consent of instructor.

Studies of different chemical aspects of the physical and social environment (e.g. pollution, medicine, industrial chemistry) linked by a broad study theme selected by the instructor. The course will include one lecture per week by the instructor and/or guest lecturers on this broad study theme and weekly seminars in which oral reports will be made by the students concerning progress on their quarterly projects and/or weekly assignments.

195. Chemical Instrumentation. (3) I, II, III.
The Staff (Mr. McCain in charge)

Lecture, one hour; laboratory, eight hours. Prerequisite: Consent of instructor.

Theory, design, operation and maintenance of instruments used in the modern chemistry laboratory for analytical and structural determinations, and physico-chemical measurements.

196AA–ZZ. Special Courses. (1–4) I, II, III.
The Staff (Mr. Kennedy in charge)

To be taken with the consent of the instructor and the undergraduate advisor of the department as a means of meeting special curricular problems. Each faculty member has a unique letter designation which is the same as for the 299 series.

199AA–ZZ. Independent Studies in Chemistry. (1–5) I, II, III.
The Staff (Mr. Kennedy in charge)

Prerequisite: senior standing and consent of both instructor and undergraduate advisor.

Directed study, normally experimental, to be arranged with individual faculty members. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total. Each faculty member has a unique letter designation which is the same as for the 299 series.

Graduate Courses

205A–B–C. Methods in the Characterization of Biological Macromolecules. (Joint Listing with the Department of Biological Sciences) (3–3–3)
A: II; B: III, C: I.
Mr. Cassman, Mr. Hooker, Mrs. Lee

Lecture, two hours; discussion, one hour. Prerequisites: physical chemistry, biochemistry, calculus, and consent of the instructors.

A: Theory and practice of physical methods employed to study macromolecules. Hydrodynamic properties, including sedimentation, diffusion, viscosity, osmotic pressure.

B: Theory and practice of physical methods employed to study macromolecules. Spectroscopic techniques, including ORD, CD, UV, fluorescence, and phosphorescence, NMR, ESR, electron microscopy, and X-ray diffraction.

C: Selected topics in physical biochemistry.

212. Chemical Dynamics. (3) I or II.
Mr. Martin, Mr. Millikan

Lecture, three hours. Prerequisite: consent of instructor.

Potential energy surfaces, collision dynamics, derivation of reaction-rate expressions, relaxation rates and methods, bimolecular atom-transfer reactions, unimolecular reactions, theory of complex reactions, bimolecular energy transfer.

213. Advanced Thermodynamics. (3) I.
Mr. Kirtman

Lecture, three hours. Prerequisite: consent of instructor.

Emphasis on irreversible processes. Review of classical thermodynamics, definition of flows and forces; conservation laws; local entropy production; phenomenological equations relating flows and forces; Onsager's reciprocal relations; principle of minimum entropy production. Applications to problems of biological and physical interest.

214A–B. Statistical Mechanics. (3–3) II, III.
Mr. Hooker

Lecture, three hours. Prerequisite: consent of instructor.

A: Theoretical basis of classical and quantum statistical mechanics. Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics. Partition functions. Calculation of thermodynamic properties of ideal systems. B: Applications—diatomic molecules, nuclear spin statistics, polyatomic molecules, solid state, fluctuation theory, imperfect gases, liquids.

215A–B. Principles of Quantum Mechanics. (3–3) II, III.
Mr. Harris, Mr. Kirtman, Mr. Palke

Lecture, three hours. Prerequisite: consent of instructor.

The failures of classical theory. The Schrodinger equation, wavefunctions, and their interpretation. Free particles and wave packets. Interaction of particles and potentials. Coulomb potential. Harmonic Oscillator. Angular Momentum. Perturbation Theory. Systems of Identical Particles. Time Dependent Perturbation Theory.

216. Selected Topics in Quantum Chemistry. (1–4) I, II, III.
Mr. Harris, Mr. Kirtman, Mr. Palke

Lecture, 1–4 hours. Prerequisite: consent of instructor.

A selected topic will be discussed. Examples: applications of group theory, electronic structure, scattering. Course may be repeated with a different topic (18 units maximum).

219. Selected Topics in Physical Chemistry. (1–4) I, II, III.
Mr. Bowers, Mr. Harris, Mr. Hooker, Mr. Kirtman, Mr. Martin, Mr. McCain, Mr. Miller, Mr. Millikan, Mr. Offen, Mr. Palke, Mr. Pritchard

Lecture, 1–4 hours. Prerequisite: consent of instructor.

A selected topic will be discussed. Examples: magnetic resonance, condensed phases, kinetic spectroscopy. Course may be repeated with a different topic (18 units maximum).

230. Modern Instrumental Techniques in Organic Chemistry. (3) III.
Mr. Gerig

Lecture, three hours. Prerequisite: Graduate standing or consent of instructor.

Practical spectroscopy including infra-red and ultraviolet, but with primary emphasis on nuclear magnetic resonance, electron spin resonance, and mass spectroscopy.

231. Advanced Physical Organic Chemistry. (3) II.
Mr. Bunton, Mr. DeWolfe

Lecture, three hours. Prerequisite: Consent of instructor.

Study of the structural and environmental factors which influence the course of chemical reactions of organic compounds.

232. Carbonium Ions. (3) I.
Mr. Bunton, Mr. DeWolfe

Lecture, three hours. Prerequisite: Graduate standing or consent of instructor.

Reactions and rearrangement of carbonium ions; non-classical ions; allylic ions.

233. Advanced Synthetic Chemistry. (3) I, II, III.
Mr. Baker, Mr. Aue, Mr. Santi

Lecture, three hours. Prerequisite: Consent of instructor.

A comprehensive discussion of modern synthetic organic methods. Including the applications of addition, condensation, substitution and rearrangement reactions.

234. Carbanions. (3) II.
Mr. Kaska, Mr. Rickborn

Lecture, three hours. Prerequisite: Graduate standing or consent of instructor.

Chemistry of carbanions, electrophilic substitution at saturated carbon, organometallic compounds of groups I and II, A and B, and IIIA.

235. Conformational Analysis. (2) III.
Mr. Rickborn, Mr. Anderson, Mr. Gerig

Lecture, two hours. Prerequisite: Graduate standing or consent of instructor.

Conformational effects in the structure and reactivity of organic compounds.

236. Molecular Orbital Theory. (3) I, II, III.
Mr. Gerig

Lecture, three hours. Prerequisite: Graduate standing or consent of instructor.

Applications of molecular orbital theory to organic chemistry.

237. Organometallic Compounds of the Transition Metals. (3) II.
Mr. Anderson, Mr. Kaska, Mr. Ford

Lecture, three hours. Prerequisite: Graduate standing or consent of instructor.

Synthesis, structure, and reactions of organometallic compounds of the transition metals.

238. Selected Topics in Natural Products. (3) I, II, III.
The Staff (Mr. Baker in charge)

Lecture, 3 hours. Prerequisite: Consent of instructor.

Selected topics from Natural Products. The contents of this course will vary. Course may be repeated with different topic. (18 units maximum).

239. Selected Topics in Organic Chemistry. (3) I, II, III.
The Staff (Mr. Anderson in charge)

Lecture, three hours. Prerequisite: Consent of instructor.

Selected topics from organic chemistry. The contents of this course will vary. Course may be repeated with different topics (18 units maximum).

241A–B. Advanced Bio-Organic Reactions. (3–3) A: I; B: II. Mr. Bruice

Lecture, three hours. Prerequisite: Consent of instructor.

A lecture course in bio-organic mechanisms. The type chemical transformations of importance in biochemical reactions will be discussed from a physical organic point of view. Mechanisms of nucleophilic displacement reactions on carbonyl and pentavalent phosphorous, hydration reactions, chemical reactions of cofactors, enzymic catalysis and enzyme models are among the topics discussed.

242. Terpenes. (2) I. Mr. Aue

Lecture, two hours. Prerequisite: Graduate standing or consent of the instructor.

The occurrence, isolation, structural elucidation, reactions and biogenesis of terpenes.

243. Steroids. (2) III. Mr. Aue

Lecture, two hours. Prerequisite: Graduate standing or consent of the instructor.

The occurrence, structural elucidation, reactions and synthesis of steroids.

244. Carbohydrates. (3) I. Mr. Baker

Lecture, three hours. Prerequisite: Chem. 233 or equivalent.

Chemical replacement of one or more hydroxl functions of sugars by such groups as amino, deoxy, or thio. Conversion of straight chain to branched chain sugars. Inversion of configuration. Blocking technics to perform these reactions on a single hydroxyl group.

245. Heterocycles, Nucleosides, Nucleotides. (3) III. Mr. Baker, Mr. Santi

Lecture, three hours. Prerequisite: Graduate standing or approval by instructor if undergraduate student.

The proof of structure, synthesis, and transformations of nucleotides, nucleosides,, purines, pyrimidines, and related heterocycles are discussed.

246. Chemical Aspects of Intermediary Metabolism. (3) III. Mr. Baker, Mr. Santi

Lecture, three hours. Prerequisite: Consent of instructor.

The chemistry of anabolic and catabolic pathways for nucleic acids, proteins, vitamins, and cofactors.

247A–B. Design of Enzyme Inhibitors. (3–3) II, III. Mr. Baker

Lecture, three hours. Prerequisite: Approval of instructor.

Mode of reversible complexing between enzymes and inhibitors by donor-acceptor and hydrophobic bonds; irreversible inhibition of enzymes by covalent linkage of inhibitors to enzymes; kinetic parameters, functional groups on inhibitors necessary for reversible and irreversiible binding.

248. Mechanisms of Organic and Enzymatic Reactions. (3) I, II, III. Mr. Bruice

Lecture, three hours. Prerequisite: Consent of instructor.

Formal presentations of seminars on recent literature dealing with mechanisms of organic and enzymatic reactions accompanied by open discussion of the topics considered.

249. Selected Topics in Bio-Organic Chemistry. (3) I, II, III. The Staff
(Mr. Crestfield, Mr. Baker in charge)

Lecture, three hours. Prerequisite: Consent of instructor.

Selected topics from Bio-Organic Chemistry. The contents of this course will vary. Course may be repeated with different topic. (18 units maximum).

273. Structural Inorganic Chemistry. (3) I, II, III. Mr. Selwood

Lecture, three hours. Prerequisite: Consent of instructor.

Molecular aggregation and structural analysis. Theories of properties and experimental determination of structure; applications to solid state chemistry; heterogeneous catalysis.

279. Selected Topics in Inorganic Chemistry. (3) I, II, III.
The Staff (Mr. Selwood in charge)

Lecture, three hours. Prerequisite: Consent of instructor.

Selected topics from inorganic chemistry. The content of these courses will vary. Course may be repeated with different topics. (18 units maximum)

290. Seminar in Chemistry. (2) I, II, III.
The Staff

Lecture, one hour. Prerequisite: Consent of instructor.

Presentation of seminar required of all chemistry graduate students. Course may be repeated.

291. Special Seminar in Chemistry. (2) I, II, III.
The Staff (Mr. Bunton in charge)

Lecture, one hour. Prerequisite: Consent of instructor.

Specialized seminar topics. May be repeated.

594AA–594ZZ. Special Topics. (1–4) I, II, III.
The Staff

Special seminar on research subjects of current interest.

595AA–595ZZ. Group Studies. (2) I, II, III. The Staff

Critical review of research in selected fields. Regular meetings are held in which the student presents for discussion information from the recent chemical literature.

596AA–596ZZ. Directed Reading and Research. (2–12) I, II, III. The Staff

Individual tutorial. Instructor usually student's major professor. A written proposal for each tutorial must be approved by the Department Chairman and filed with the Graduate Division. No more than half the units necessary for the master's degree may be taken in 596.

597AA–597ZZ. Individual Study for Master's Comprehensive Examinations and Ph.D. Examinations. (1–3) I, II, III. The Staff

Instructor should be the student's major professor or chairman of his doctoral committee. No unit credit allowed toward advanced degree(s). S/U grade.

598AA–598ZZ. Master's Thesis Research and Preparation. (1–12) I, II, III. The Staff

Only for research underlying the thesis, writing the thesis. Instructor should be the chairman of the student's thesis committee. No unit credit will be given. S/U grade.

599AA–599ZZ. Ph.D. Dissertation Preparation. (1–12) I, II, III. The Staff

Only for preparation of the dissertation. Instructor should be the chairman of the student's doctoral committee. S/U grade.

CHICANO STUDIES

Carlos Zamora, Ph.D., *Assistant Professor of Hispanic Literatures and Chicano Studies (Acting Chairman of Department).*
Jesús Chavarría, Ph.D., *Assistant Professor of History and Chicano Studies.*
Amado Padilla, Ph.D., *Assistant Professor of Psychology and Chicano Studies.*
Reyes Ramos, B.M.E., *Acting Assistant Professor of Sociology and Chicano Studies.*
Pedro Castillo, M.A., *Associate in History and Chicano Studies.*
Jorge Huerta, M.A., *Associate in Dramatic Art and Chicano Studies.*
Salvador Rodríguez del Pino, M.A., *Associate in Chicano Studies.*

The Department of Chicano Studies, inaugurated on June 1, 1970, is engaged in the development of a program of formal studies focusing upon the Chicano from the perspective of various disciplines, and also from a perspective of past and present which looks to the future. This interdisciplinary program subjects to critical analysis the Chicano reality: psychological, social, economic, political, historical, educational, linguistic and artistic.

In seeking to understand the Chicano present, the program delves into significant periods of Mexican history; for example: early nineteenth century conflict between Anglos and northern Mexicans; the U. S. War against Mexico: 1846–1848; and the Conquest: 1848–present. In seeking to understand the nature of contemporary Chicano culture, currently in renaissance, the program probes still further into the historical past, explores still more deeply long roots of tradition which reach as far back as the pre-Columbian peoples of Mexico, and which are ultimately part of the broader context of Latin American history and culture.

The interdisciplinary character of the curriculum is an innovative feature which will be increasingly strengthened as the program develops. The department will establish—as the norm—small, seminar-type classes conducted simultaneously by several professors, from different but related disciplines.

The bi-lingual nature of the program is another innovation which the department will increasingly stress. It is planned that an ever-larger number of courses will be conducted in Spanish at an early date, and that this will remain a characteristic feature of the program.

The involvement of the student in the planning and development of the program is still another innovation which began with the genesis itself of the entire Chicano Studies program at UCSB. This comprehensive program includes three major components which function as one integrated effort, devoted, ultimately, to directing the three principal functions of the university—teaching, research, and public service—to the Chicano community. The Department of Chicano Studies has responsibility for the academic program, and works closely with the Chicano Student Services program, which provides students such support services as counselling, and financial and tutorial assistance. The Center for Chicano Studies is responsible for research, publications, and community services.

The creation of the Department of Chicano Studies represents a long-due legitimization of the study of the Chicano as a distinct field of study within the College of Letters and Science. The program, which is not yet constituted as a minor or a major, is designed for students desiring a meaningful education that is broadly based even as it focuses upon the Chicano experience in a specialized manner. It is especially recommended for those planning careers of special importance for the Chicano community: education, law, medicine, civil and social services. It has also been conceived with the student in mind who plans to pursue graduate studies in Chicano Studies, or in the humanities and social sciences.

CHICANO STUDIES

1A–1B–1C. Introduction to Chicano Studies. (4–4–4) I, II, III. The Staff

An introduction to the historical and contemporary development of the Chicano community, interdisciplinary in nature, and focusing upon such components as the educational, sociological, and political. The course will critically analyze the societal context in which La Raza has sought to maintain and develop its culture.

10. Elementary Chicano Spanish. (4) I. Mr. Rodríguez del Pino

An introduction to the Spanish of the barrio, with an emphasis on the acquisition of skill in speaking. The course will stress the importance of grammar and vocabulary-building as fundamental to the achievement of oral skills.

11. Intermediate Chicano Spanish. (4) II.
Mr. Rodríguez del Pino

A continuation of the study of the Spanish of the barrio, with an emphasis on the acquisition of skill in speaking. The course will stress the importance of grammar and vocabulary-building as fundamental to the achievement of oral skills.

12. Advanced Chicano Spanish. (4) III.
Mr. Rodríguez del Pino

A continuation of the study of the Spanish of the barrio, with an emphasis on the acquisition of skill in speaking. The course will stress the importance of grammar and vocabulary-building as fundamental to the achievement of oral skills.

101A–B. History of the Chicanos. (4–4) I, II.
Mr. Castillo

The history of the Chicanos, 1821 to the present; traces the social-cultural lifeline of the Mexicans who have lived north of Mexico.

101Q. Special Studies in Chicano History.
(4) III. Mr. Castillo

Studies in selected aspects of Chicano history, with an emphasis on social and economic history.

115. The Psychology of the Chicano Child.
(4) I, II, III. Mr. Padilla

An analysis of the development and structure of personality in the Chicano child. The course will focus on emotional-social growth within the bilingual, bi-cultural framework in which the personality of the Chicano child develops.

144. The Chicano Community. (4) I, II, III.
Mr. Ramos

Origins of the Chicano in rural Mexico; context of contact; patterns of settlement in the United States; the Chicano community; social structure and social change; acculturation and generational patterns; community leadership and change.

170. Chicano Community Organizations.
(4) I, II, III. The Staff

A study of change in the functions of organized activity and in the role of the leadership within the Chicano community.

174. Chicano Politics. (4) I, II. The Staff

Political life in the barrio, political behavior of the Chicano community and representation of Chicanos by elected officials and interest groups.

190. Reading Chicano Literature.
(4) I, II, III. Mr. Zamora

Selected readings in representative works of the Chicano, in the context of a broad inquiry into the nature and function of literature.

CLASSICS

Keith Aldrich, Ph.D., *Professor of Classics.*
Howard Clarke, Ph.D., *Professor of Comparative Literature (Classics).*
Alva W. Bennett, Ph.D., *Associate Professor of Classics.*
David C. Young, Ph.D., *Associate Professor of Classics (Chairman of the Department).*
[1]Apostolos Athanassakis, Ph.D., *Assistant Professor of Classics.*
[3]Borimir Jordan, Ph.D., *Assistant Professor of Classics.*
[1]Joseph S. Margon, Ph.D., *Assistant Professor of Classics.*

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H. D. F. Kitto, B.A., F.B.A., F.R.S.L., *Lecturer in Classics.*
L. Purcell Weaver, M.A., *Lecturer in Classics.*

The field of Classics incorporates the study of the civilization of ancient Greece and Rome, and of the world and time over which the Greeks and Romans extended their influence. The heart of classical studies is the collection of literary, historical, philosophical, and scientific writings from Homeric down to Byzantine times, which survived to direct the development of modern Western culture. The reconstruction and interpretation of these writings is the primary responsibility of the classical philologist. His colleagues frequently are specialists in some particular field, such as epigraphy, the study of ancient inscriptions; or papyrology, the study of papyrus remains. Others devote their talents to research in specific cultural phenomena, such as Greek political theory, classical art, or mythology. Still others turn their attention to the problems of language, grammar, and linguistics. All these studies are interrelated, and all the classicists pursuing them are in a real sense working toward the same goal: a wider picture of Graeco-Roman culture as a means toward a clearer understanding of our own.

The Major in Classics

The Classics major program offers a challenging but rewarding course of study in the unified field of Graeco-Roman culture. It is designed to accommodate both the aspirant to graduate studies in Classics or related fields and the student primarily interested in an undergraduate liberal arts major.

a) Preparation for major: in addition to Greek 105 (or 104) and Latin 105 (or equivalents) with a grade of C or higher, the student must pass History 4A–4B and Philosophy 20A.

b) The major must complete a minimum of 36 units in upper division Classics, Greek, and Latin courses, including Latin 110A–B–C and Greek 140A–B–C (6 units). The remaining 30 units must come from courses numbered 106 or above (Greek 104 and 105 and Latin 105 do not count toward the departmental upper division requirements); of these 30 units, the minimum in either language is 12.

c) At least one year of German or the equivalent is strongly recommended for the major who intends to pursue the field of Classics beyond the B.A. degree. It is also recommended that some of the student's electives be chosen from Classics 37–40 and from closely related courses in art, history, and philosophy.

The Major in Greek

a) Preparation for major: same as for Classics major.

b) The major must complete a minimum of 36 units in upper division Greek and Latin courses (exclusive of Greek 104 and 105 and Latin 105), including Greek 140A–B–C; the minimum in Greek is 23 units, and the minimum in Latin is 4.

c) Same as for Classics major.

The Major in Latin

a) Preparation for major: same as for Classics major.

b) The major must complete a minimum of 36 units in upper division Latin and Greek courses (exclusive of Latin 105 and Greek 104 and 105), including Latin 110A–B–C; the minimum total in Latin is 23 units, and the minimum in Greek is 4.

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[1] Absent on leave, fall 1971.

[3] Absent on leave, spring 1972.

c) Same as for Classics major.

The Major in Classical Civilization

The major in Classical Civilization is designed for those students who wish to pursue a basic liberal arts degree and prefer a general, interdisciplinary program to specialization in the Classical languages and their literature.

a) Preparation for major: Classics 37, 38, 40, and Philosophy 20A. Satisfaction of General Education Language Requirement in either Greek or Latin (no further language study is required).

b) The major must complete 40 upper division units from the courses listed below, distributed among the specified groups as indicated.

1. Classics 100A–B (8 units)
2. At least two courses from the following (Group I): Classics 102, 120, 125, 130 (8 units)
3. At least five courses from Groups II–IV, a minimum of one course in each group. Group II: History 111A–B, 112, 113A–B, Political Science 187; Group III: Philosophy 151, 152A–B, 153A–B, Religious Studies 132, 135; Group IV: Art 152D–E–F–G–H, Classics 180 (20 units)
4. The tenth required course may come from any of the above groups or from any Greek or Latin course numbered 111 or higher.

The Minor in Classics

A minimum of 30 units of work in Greek and Latin is required, including Greek 106, Latin 106, and one course numbered above 106.

The Minor in Greek

A minimum of 30 units of work in Greek courses is required. Courses in translation do not count toward the minor.

The Minor in Latin

A minimum of 30 units of work in Latin is required. Courses in translation do not count toward the minor.

THE DEGREE OF MASTER OF ARTS

1. In addition to the general requirements for admission to graduate status, the applicant should have an undergraduate major or the equivalent in Greek, Latin, or Classics. Other students may be admitted if they demonstrate proficiency in the languages, but they will be required to make up any deficiencies in their undergraduate training, in addition to the regular course work for the M.A. degree.

2. The department offers the M.A. degree under Plan I (30 units and thesis) and Plan II (36 units without thesis). In either plan, more than half of the units must be in graduate courses within the department. The remaining units may come from upper division courses in the department or from approved courses in other departments such as art, history, and philosophy, if they are relevant to the student's program.

3. The following courses are required: pro-seminar in bibliography and methodology (Classics 201); a three quarter sequence in the history of Greek and Latin literature (Classics 211–212–213).

4. The candidate must meet the following requirements before taking the M.A. comprehensive examination: a) reading knowledge of German, French, or Italian (by examination) b) sight translation (by examination) c) composition (by course credit or examination d) ancient history.

5. Successful performance in the M.A. comprehensive examination on Greek and Latin literature.

TEACHING CREDENTIALS

The major in Classics or the majors in Greek or Latin may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in Classics and in the Graduate School of Education.

Latin may be chosen as a teaching minor for any of the named credentials for those who desire to fulfill the prescribed courses listed above.

CLASSICS

Lower Division Courses

Courses in Translation

20. Greek and Latin in Current English. (4) III. The Staff

Study of the classical element in English etymology.

37. Greek Literature in Translation. (4) I, II. The Staff

Reading and lecture survey of principal Greek writers, such as Homer, Pindar, and Thucydides.

38. Latin Literature in Translation. (4) III. The Staff

Reading and lecture survey of principal Roman writers, such as Catullus, Horace, and Vergil.

40. Greek Mythology. (4) I, II, III. The Staff

Study of the rationale of mythology, and the various patterns of mythography. Readings in primary literary sources.

Upper Division Courses

100A–B. Greek and Roman Civilization. (4–4) II, III. Mr. Margon, Mr. Weaver

Introduction to the various aspects of Greco-Roman civilization, such as art, education, daily life, festivals, law, religion, science, and sports. 100A: Greek; 100B: Roman.

102. Greek Tragedy. (4) I. Mr. Kitto

Plays by Aeschylus, Sophocles, and Euripides in English translation. The role of tragedy in Greek culture and literature.

120. Greek and Latin Lyric Poetry. (4) II. Mr. Bennett

Development, forms, and interpretation of ancient lyric poetry; such authors as Sappho, Pindar, Catullus, and Propertius in English translation.

***125. Greek and Roman Historiography.** (4) III. Mr. Jordan

Development of history as a genre; such authors as Herodotus, Thucydides, Livy, and Tacitus in English translation.

130. Comedy and Satire. (4) III. Mr. Aldrich

The comic playwrights, such as Aristophanes and Plautus, and satirists, such as Lucian and Juvenal, in English translation.

180. Classical Archaeology. (4) II. Mr. Jordan

Prerequisite: Anthropology 3 or one upper division course in a related field, such as classical languages, prehistory, ancient art or history, or permission of instructor.

An introduction to the methods of classical archaeology and a survey of the major monuments and sites of Greece.

199. Independent Studies in Greek and Latin. (1–5) I, II, III. The Staff

Independent study in areas in which both Greek and Latin are necessary. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

201A–B. Pro-seminar. (2–2) I, II. Mr. Young

Bibliography, methodology, and history of classical scholarship.

202. Comparative Greek and Latin Morphology and Syntax. (4) II. Mr. Athanassakis

Introduction to classical linguistics; history of Greek and Latin in their Indo-European context (including Mycenaean Greek).

***203. Mythology and Religion.** (4) III. Mr. Aldrich

Greek myths: development, variants, and literary use. Greek and Roman religions.

211–212–213. History of Greek and Latin Literature. (2–2–2) I, II, III. The Staff

Survey of development of poetry and prose; major authors. Special reading and reports.

253. Epigraphy and Paleography. (4) III. Mr. Jordan

596AA–ZZ. Directed Reading and Research. (2–4) I, II, III. The Staff

Prerequisite: written proposal, approved by Department chairman and filed with Graduate Division. Individual Tutorial.

597. Preparation For Comprehensive Exams. (1–6) I, II, III.

Prerequisite: permission of graduate adviser and chairman.

Study for Master's comprehensive examinations and Ph.D. examinations. No unit credit allowed toward degree.

598AA–ZZ. Master's Thesis Research and Preparation. (1–4) I, II, III. The Staff

Prerequisite: permission of instructor and graduate adviser. Independent Research. No unit credit toward degree.

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* Not to be given 1971–72.

GREEK

Lower Division Courses

1. Elementary Greek. (4) I, III. The Staff

2. Elementary Greek (continuation of Greek 1). (4) I, II. The Staff
Prerequisite: Greek 1 or equivalent.

3. Intermediate Greek. (4) II, III. The Staff
Prerequisite: Greek 2 or equivalent.
Review of syntax and reading of Attic prose writers.

4. Accidence and syntax. (1) I, II, III. The Staff
Prerequisite: Greek 3 or equivalent.
Systematic study of declensions and conjugations; peculiarities of syntax. No reading. May be taken concurrently with courses for which it is prerequisite; an A or B grade in Greek 3 will be considered the equivalent of Greek 4 where the latter is a prerequisite.

Upper Division Courses

Greek 104 or Greek 105 or Greek 106 is equivalent to quarter course 5 for fulfillment of the General Education requirement in Foreign Language.

***104. Herodotus.** (4) I. The Staff
Prerequisite: Greek 4 or equivalent.
Reading and study of the History of Herodotus.

105. Introduction to Prose: Attic Orators. (4) I, III. The Staff
Prerequisite: Greek 4 or equivalent.
Advanced reading and syntactical analysis.

106. Introduction to Poetry: Homer. (4) II. The Staff
Prerequisite: Greek 4 or equivalent.
Reading in the *Iliad.* Homeric grammar and metrics. Greek 104 (or 105) and 106 or their equivalent are prerequisite to all higher language courses in Greek.

139. New Testament Greek. (4) II. Mr. Pearson
Prerequisite: Greek 104 (or 105) and 106 or permission of instructor. Reading in the Greek New Testament, with comparative study of related materials from Greek literature of the Hellenistic-Roman period (same as Religious Studies 139).

140A–B–C. Greek Prose Composition. (1–1–1) Yr. The Staff
Advanced grammar, sight reading, and extended prose composition. It is recommended that this series of courses be taken together with Greek 161–2–3.

***141. Pre-Socratic Philosophers.** (4) I. Mr. Young
Philological study in materials ranging from Thales through Democritus.

***142. Plato.** (4) II. Mr. Margon
Reading and study of a complete Socratic dialogue.

***143. Post-Platonic Philosophers.** (4) III. Mr. Margon
Philological study in materials ranging from Aristotle through Plotinus.

***151. Euripides.** (4) I. Mr. Aldrich
Introduction to the tragic genre. Reading and study of a complete play.

***152. Sophocles.** (4) II. Mr. Young
A complete tragedy, plus readings in Sophoclean literature.

***153. Aeschylus.** (4) III. The Staff
Prerequisite: Greek 5 and 6 or their equivalent.
Study of a complete tragedy. Problems of textual criticism.

161. Hesiod, Theognis, and Solon. (4) I. Mr. Aldrich
An introduction to archaic religion, mythology, ethics, and historiography.

163. Thucydides. (4) III. Mr. Jordan
Reading and research in the historical, literary, and philological aspects of Thucydides.

164. Aristophanes. (4) II. Mr. Athanassakis
Reading of a complete play; history of Greek comedy.

171. Lyric poets and Homeric hymns. (4) I. The Staff
Exclusive of the choral poets and the primarily ethical elegists. The fragments of Alcaeus, Anacreon, Archilochus, Sappho, Tyrtaeus, and others; selected Homeric hymns.

172. Pindar. (4) II. Mr. Young
Reading, interpretation, metrical study, and textual criticism. Introduction to other choral poets.

173. Hellenistic Poets. (4) III. Mr. Bennett
Introduction to the poetry of the Alexandrian period, such as that by Apollonius Rhodius, Callimachus, and Theocritus.

199. Independent Studies in Greek. (1–5) I, II, III. The Staff
199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

241A–Z. Seminar in Greek Literature. (4) I, II, III. The Staff
Prerequisite: Classics 201 or permission of instructor.
Intensive study and research in a Greek author or genre. Author varies. Course number may be repeated, but not letter.

596AA–ZZ. Directed Reading and Research. (2–4) I, II, III. The Staff
Prerequisite: written proposal, approved by Department chairman and filed with Graduate Division.
Individual Tutorial.

598AA–ZZ. Master's Thesis Research and Preparation. (1–4) I, II, III. The Staff
Prerequisite: permission of instructor and graduate adviser.
Independent Research. No unit credit toward degree.

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* Not to be given 1971–72.

LATIN

Lower Division Courses

1. Elementary Latin. (4) I, II, III. The Staff

2. Elementary Latin (continuation of 1). (4) I, II, III. The Staff
Prerequisite: Latin 1 or equivalent.

3. Intermediate Latin. (4) I, II, III. The Staff
Prerequisite: Latin 2 or equivalent.
Review of forms and syntax, and reading of Roman prose writers.

4. Accidence and syntax. (1) I, II, III. The Staff
Prerequisite: Latin 3 or equivalent.
Systematic study of declensions and conjugations; peculiarities of syntax. No reading. May be taken concurrently with courses for which it is prerequisite; an A or B grade in Latin 3 will be considered the equivalent of Latin 4 where the latter is a prerequisite.

11. Intensive Elementary Latin. (4) I. The Staff
Primarily for graduate students. Latin 11 covers the same ground as Latin 1–2, but at a far more rigorous pace.

Upper Division Courses

Latin 105 or Latin 106 is equivalent to quarter course 5 for fulfillment of the General Education requirement in Foreign Language.

105. Introduction to prose: Cicero and Caesar. (4) II. The Staff
Prerequisite: Latin 4 or equivalent.
Advanced reading and syntactical analysis. Background of Latin prose development. Latin 105 is equivalent to language 5 in the Foreign Language requirement.

106. Introduction to Poetry: Ovid. (4) I, III. The Staff
Prerequisite: Latin 4 or equivalent.
Grammar and metrics of Latin poetry. Latin 106 is equivalent to language 5 in the Foreign Language requirement. Latin 105 and 106 or their equivalent are prerequisite to all higher language courses in Latin.

***110A–B–C. Latin Prose Composition.** (1–1–1) Yr. The Staff
Advanced grammar, sight reading, and extended prose composition.

***111. Roman Epic.** (4) I. The Staff
Backgrounds. Vergil. Introduction to later epic poets, such as Lucan and Statius.

***112. Roman Elegy.** (4) II. Mr. Bennett
Reading and study of Propertius and other elegists.

***113. Roman Satire.** (4) III. Mr. Bennett
Horace, Juvenal, Persius, and their antecedents.

115. Roman Comedy. (4) I. Mr. Bennett
Plautus and Terence. Reading of complete plays and study of the origins of Roman Comedy.

116. Cicero: Essays and Letters. (4) II. Mr. Jordan
The private Cicero. Philosophical and oratorical works and correspondence.

117. Prose of the Empire. (4) III. Mr. Margon
Study and reading selected from such authors as Seneca, Petronius, Quintilian, and Pliny.

***121. Sallust.** (4) I. Mr. Bennett
Reading and philological study.

***122. Livy.** (4) II. The Staff
Study of the structure and Latinity of Livy. Extensive reading.

***123. Tacitus.** (4) III. The Staff
Reading in the major works. Study of Tacitean style and models.

131. Poets of the Roman Republic. (4) I. Mr. Athanassakis
Principally Ennius, Lucretius, and Catullus.

132. Augustan Poets. (4) II. Mr. Bennett
Horace: *Odes and Epodes.* Vergil's *Eclogues* and *Georgics.*

133. Post-Augustan Poets. (4) III. The Staff
Readings in lyric poetry from the early empire to and including the late classical period.

199. Independent Studies in Latin. (1–5) I, II, III. The Staff
199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

221A–Z. Seminar in Latin Literature. (4) I, II, III. The Staff
Prerequisite: Classics 201 or permission of instructor.
Intensive study and research in a Latin author or genre. Author varies. Course number may be repeated, but not letter.

596AA–ZZ. Directed Reading and Research. (2–4) I, II, III. The Staff
Prerequisite: written proposal, approved by Department chairman and filed with Graduate Division.
Individual Tutorial.

598AA–598ZZ. Master's Thesis Research and Preparation. (1–4) I, II, III. The Staff
Prerequisite: Permission of instructor and graduate adviser.
Independent Research. No unit credit toward degree.

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* Not to be given 1971–72.

COLLEGE OF CREATIVE STUDIES

Alice Baber, M.A., *Lecturer in Art.*
Edward E. Dron, M.F.A., *Lecturer in Art.*
Peter Racine Fricker, F.R.C.O., *Professor of Music (and Chairman, Department of Music, UCSB).*
Vincent Jaccarino, Ph.D., *Professor of Physics (and Chairman, Department of Physics, UCSB).*
Hugh Kenner, Ph.D., *Professor of English.*
Bernard Kirtman, Ph.D., *Associate Professor of Chemistry.*
Stanley D. Krebs, Ph.D., *Associate Professor of Music.*
Marvin Mudrick, Ph.D., *Professor of English (and Provost, College of Creative Studies).*
Henry A. Pitcher, B.A., *Lecturer in Art.*
Bruce F. Rickborn, Ph.D., *Professor of Chemistry (and Associate Provost, College of Creative Studies).*
Ian K. Ross, Ph.D., *Associate Professor of Biology.*
Douglas J. Scalapino, Ph.D., *Professor of Physics.*
Max N. Schott, M.A., *Lecturer in English.*
Logan H. Speirs, M.A., *Assistant Professor of English.*
Alan Stephens, Ph.D., *Professor of English.*
Beatrice M. Sweeney, Ph.D., *Professor of Biology.*
David M. Trowbridge, M.A., *Lecturer in Art.*
Max L. Weiss, Ph.D., *Associate Professor of Mathematics.*
Paul Wonner, M.A., *Lecturer in Art.*

Enrollment in any course in the College of Creative Studies requires the consent of the instructor. Each course in the College may be taken as often as once per quarter.

GENERAL STUDIES

CS10. Group Interdisciplinary Studies. (1–6) I, II, III. The Staff

Group studies in an interdisciplinary area, supervised by a member of the faculty of the College of Creative Studies.

ART

CS1. Drawing and Painting. (1–6) I, II, III. The Staff

CS2. Themes. (1–6) I, II, III. The Staff

Drawing and painting in sequences, and according to themes.

CS3. Murals. (1–6) I, II, III. The Staff

CS4. Prints. (1–6) I, II, III. The Staff

Classical graphic media (e.g., etching and lithography) and modern technological media (e.g., photoengraving and offset-lithography).

CS10. Graphic Study of the History of Graphic Ideas: Drawing. (1–6) I, II, III. The Staff

The surviving works of art from the Paleolithic period until now constitute an existing order that may be considered the proper material for study by aspiring draughtsmen and painters. Art 10 emphasizes drawing.

CS11. Graphic Study of the History of Graphic Ideas: Painting. (1–6) I, II, III. The Staff

The surviving works of art from the Paleolithic period until now constitute an existing order that may be considered the proper material for study by aspiring draughtsmen and painters. Art 11 emphasizes painting.

CS15. Student-Conducted Seminar. (1–6) I, II, III. The Staff

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Art CS1, and their work will be graded by the adviser in consultation with the student instructor.

CS20. Sculpture. (1–6) II, III. The Staff

CS21. Bronze Casting. (1–6) I, II, III. The Staff

Studies in bronze casting, with special emphasis on the lost-wax process.

CS50. Elements of Film-making. (1–6) I, II, III. The Staff

Introduction to theory and technique of film-making.

BIOLOGY

CS1. Models and Experiments. (1–6) I, II, III. Mr. Ross, Miss Sweeney

Interplay between models and experimentation in the development of an understanding of the principles of biology.

CS2. Laboratory Project. (1–6) I, II, III. Mr. Ross, Miss Sweeney

Set up by the student in consultation with the instructor, and concluding with the student's report of progress.

CS3. Reading Project. (1–6) I, II, III. Mr. Ross, Miss Sweeney

Set up by the student in consultation with the instructor, and concluding with the student's report of progress.

CS10. Student-Conducted Seminar. (1–6) I, II, III. Mr. Ross, Miss Sweeney

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Biology 1, and their work will be graded by the adviser in consultation with the student instructor.

CHEMISTRY

CS1. Major Unsolved Problems. (1–6) I, II, III. Mr. Kirtman, Mr. Rickborn

Study of some of the major unsolved problems in chemistry, with the aim of developing general experimental and theoretical approaches to these problems.

CS2. Project. (1–6) I, II, III. Mr. Kirtman, Mr. Rickborn

Investigation of a specific problem in chemistry. Set up in consultation with the instructor, and concluding with the student's report of progress.

CS3. Seminar. (1–6) I, II, III. Mr. Kirtman, Mr. Rickborn

Presentation and critical discussion of reports on original projects.

CS10. Student-Conducted Seminar. (1–6) I, II, III. Mr. Kirtman, Mr. Rickborn

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Chemistry CS1, and their work will be graded by the adviser in consultation with the student instructor.

LITERATURE

CS1. Writing: Verse. (1–6) I, II, III. The Staff

CS2. Writing: Narrative Prose. (1–6) I, II, III. Mr. Mudrick, Mr. Schott

CS3. Writing: Expository Prose. (1–6) I, II, III. Mr. Speirs, Mr. Stephens

CS10. Genres. (1–6) I, II, III. Mr. Mudrick, Mr. Schott

CS11. Literary Structure: Chronological. (1–6) I, II, III.

Narrative. Mr. Speirs, Mr. Stephens

CS12. Literary Structure: Non-Chronological. (1–6) I, II, III. Mr. Mudrick, Mr. Schott

Logical, analogical, cyclical, and repetitive schemes.

CS13. Subjects and Materials. (1–6) I, II, III. Mr. Mudrick, Mr. Schott

CS14. Themes and Motifs. (1–6) I, II, III. Mr. Mudrick, Mr. Schott

CS15. Student-Conducted Seminar. (1–6) I, II, III. The Staff

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Literature CS13, and their work will be graded by the adviser in consultation with the student instructor.

MATHEMATICS

CS1. Problem Solving. (1–6) I, II, III. Mr. Weiss

Discussion and solution of non-routine mathematical problems.

CS2. Project. (1–6) I, II, III Mr. Weiss

Set up by the student in consultation with the instructor, and concluding with the student's report of progress.

CS3. Modern Algebra. (1–6) III. The Staff

Groups; modules; vector spaces; algebras; metric structures on vector spaces; representation theory; multilinear algebra; graded structures; universal properties; a survey of important algebraic structures.

CS10. Student-Conducted Seminar. (1–6) I, II, III. Mr. Weiss

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Mathematics 1, and their work will be graded by the adviser in consultation with the student instructor.

CS20. Special Topics. (1–6) I, II, III. Mr. Weiss

MUSIC

CS1. Composition. (1–6) I, II, III. Mr. Fricker

CS10. Analysis: Harmony. (1–6) I, II, III. Mr. Krebs

CS11. Analysis: Counterpoint. (1–6) I, II, III. Mr. Fricker

CS12. History and Analysis: Fugue. (1–6) I, II, III. Mr. Krebs

CS13. History and Analysis: Major Forms. (1–6) I, II, III. Mr. Fricker

CS15. Student Conducted Seminar. (1–6) I, II, III. Mr. Fricker, Mr. Krebs.

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Music CS1, and their work will be graded by the adviser in consultation with the student instructor.

CS50. Introduction to the Materials of Music. (1–6) I, II, III. The Staff

The organization of sound, silence, and gesture in time, particularly with reference to various aspects of pitch, duration, and problems of musical form.

PHYSICS

CS1. Seminar. (1–6) I, II, III. Mr. Jaccarino, Mr. Scalapino

Group study, with regular reports delivered by students on subjects assigned and directed by the instructor.

CS2. Laboratory Project. (1–6) I, II, III. Mr. Jaccarino, Mr. Scalapino

Set up by the student in consultation with the instructor, and concluding with the student's report of progress.

CS3. Reading Project. (1–6) I, II, III. Mr. Jaccarino, Mr. Scalapino

Set up by the student in consultation with the instructor, and concluding with the student's report of progress.

CS10. Student-Conducted Seminar. (1–6) I, II, III. Mr. Jaccarino, Mr. Scalapino

The student, having prepared material which his adviser judges adequate in depth and significance, delivers it as a quarter course to other students concentrating in the same field of study. The student instructor will be supervised and graded by his adviser. Students taking the course will receive credit for Physics 1, and their work will be graded by the adviser in consultation with the student instructor.

COMPARATIVE LITERATURE PROGRAM

Howard Clarke, Ph.D., *Professor of Comparative Literature.*
Chairman, Advisory Committee.

A program in Comparative Literature initiated in 1969–70 offers undergraduate level instruction through the cooperation of the departments of languages and literatures. An undergraduate major is available and approval is anticipated for programs leading to the Master of Arts and the Doctor of Philosophy. The program is presently under the direction of the Dean of the College of Letters and Science and is administered by an Advisory Committee representing the departments of Classics, English, and modern foreign languages.

Comparative Literature is the study of literature without regard for national or linguistic boundaries. It is comparative in that it usually deals with the interrelationships between genetically connected literatures, although the comparatist may also concern himself with the masterworks of world literature, with literary trends and influences, with the history and theory of literary criticism, or with literary topics (e.g., Symbolism), themes (e.g., the Faust legend), periods (e.g., the Renaissance), and genres (e.g., the novel).

Preparation for the Major

Students intending to concentrate in Comparative Literature must first complete the normal preparation requirements for the major in two departments of literature.

The Major

The major in Comparative Literature requires forty (40) units of upper division course work in two national literatures, one of which may be English, in their original languages. Twenty of these units must be in the student's primary literature, sixteen (16) in his secondary literature. Majors must also take one four-unit course, Comparative Literature 100 (Introduction to Comparative Literature), normally in their senior year. It is the responsibility of the student and his adviser on the Comparative Literature Advisory Committee to insure by appropriate electives that his overall program is comparative in nature.

The Minor

There is no minor in Comparative Literature.

TEACHING CREDENTIALS

A major in Comparative Literature may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. Students should include in their programs the specific courses required by the departments of their primary and secondary literatures.

Upper Division Course

100. Introduction to Comparative Literature. (4) I, II, III.

Prerequisite: Reading knowledge of one foreign language.

Method and practice of comparative study.

105. The Classical Tradition. (4) III. Mr. Clarke

Prerequisite: Reading knowledge of a relevant foreign language.

Studies in the post-classical uses of Graeco-Roman literature and mythology. Neo-classicism; Classical influences on western literature; Myth and literature.

110A–B. Mannerism and Baroque. (4–4) II, III. Mr. de Sena

Prerequisite: Reading knowledge of a relevant foreign language.

A comparative approach to literature and its historical and philosophical background in the sixteenth and seventeenth centuries, with some attention to philosophy, music and the visual arts. Selected readings from French, Spanish, Portuguese, Italian and English writers of the period.

Either quarter may be elected separately.

115. The Bildungsroman. (4) II. Mr. Temmer

Prerequisite: Reading knowledge of French or German.

A comparative study of the "novel of education" in French, German and English literature. Readings from Rousseau, Stendhal, Flaubert, Goethe, Keller, James and Joyce.

120. Medieval Literature. (4) II.

Prerequisite: Reading knowledge of a relevant foreign language.

Studies in the popular, courtly, religious and heroic traditions of western European literature and drama from the end of classical antiquity to the beginning of the Renaissance. The origin, development and transmission of characteristic themes.

COMPUTER PROGRAM

J. G. Skalnik, D.Eng., *Professor of Electrical Engineering, Dean, College of Engineering.*

A course in Computer Solutions of Engineering and Science Problems is required for all engineering majors in the freshman year. The course is jointly offered by the departments within the College of Engineering and is administered through the Office of the Dean, College of Engineering.

For convenience of registration, the course is cross-listed as Ch.E. 3A–B, E.E. 3A–B, M.E. 3A–B, and Nu.E. 3A–B. Students in engineering are expected to enroll under the designation appropriate to their major. Students in Chemistry, Mathematics, Physics, and related areas may enroll under any one of the listed designation.

Students should consult the appropriate sections of the General Catalog for a complete listing of engineering courses. Special attention is called to additional computer courses in the Department of Electrical Engineering.

Ch.E. 3A–B, E.E. 3A–B, M.E. 3A–B, or Nu.E. 3A–B. Computer Solutions of Engineering and Science Problems. (2–2) I(A), II(B). Staff.

Prerequisite: Math 3A–B, concurrently.

Applications of computers to engineering and scientific problems. FORTRAN language programming, elements of numerical analysis, including introduction to error sources, recursion, numerical calculus, root finding, etc. Students will use the computer. Ch.E. 3A–B, E.E. 3A–B, M.E. 3A–B, and Nu.E. 3A–B are identical courses.

DRAMATIC ART

Stanley L. Glenn, Ph.D., *Professor of Dramatic Art.*
Theodore W. Hatlen, Ph.D.,*Professor of Dramatic Art.*
William R. Reardon, Ph.D., *Professor of Dramatic Art.*
Michael C. Addison, Ph.D., *Associate Professor of Dramatic Art (Chairman of the Department).*
John D. Harrop, Ph.D., *Assistant Professor of Dramatic Art.*
Robert D. Morgan, M.F.A., *Assistant Professor of Dramatic Art.*
Donald J. Childs, M.A., *Lecturer in Dramatic Art.*
Brian P. Johnston, M.A., *Lecturer in Dramatic Art.*
Ruth Morgenroth, *Lecturer in Dramatic Art.*
Leland K. Strasburg, B.F.A., *Lecturer in Dramatic Art.*
Cedric R. Winchell, Ph.D., *Lecturer in Dramatic Art.*

◆

Charles E. Bettis, M.A., *Associate in Dramatic Art.*
George A. Huerta, M.A., *Associate in Dramatic Art.*

THE MAJOR

The major in Dramatic Art provides a liberal arts education and preparation for professional or educational work in the theater. The study of dramatic literature and theater history is balanced by studio courses and participation in dramatic production in the campus theaters. The major may lead to graduate work and prepare the student for a teaching credential. The Department of Dramatic Art reserves the privilege of determining the students who will be accepted and who will continue in the Department on the basis of academic achievement and participation in the production program.

Requirements for the Major

Students must meet the General Education requirements as outlined in this catalog. Following are listed specific elective courses in the General Education sequence which are required for the Dramatic Art major:

English 117A, History (American Institutions), Political Science (American Institutions), Psychology 1 or 101, History 4A–B–C, and 2 courses from Art 1 or 150, Dance 45, or Music 15.

All Dramatic Art majors must complete the required core courses *in the following sequence:* First year: Dramatic Art 5, 21A–B–C–D or 24A–B–C–D, 60; Second year: Dramatic Art 21A–B–C–D or 24A–B–C–D; Third year: Dramatic Art 160A–B–C; Fourth year: Dramatic Art 160D–E–F, 153A–B. Three units from Dramatic Art 149A–B–C–D may be taken any time during the Junior and Senior years.

The following areas of emphasis are offered: Acting, Directing, Design and Technical Theater, and a Tutorial Program. The courses in your emphasis must be worked out with your Department Advisor upon entrance. Final declaration of the emphasis and approval by the Department Advisor must be made by the beginning of the Junior year.

EMPHASIS PROGRAMS

Acting

Dramatic Art 11A–B–C (3); 12 (3); 15A–B–C (9); 26 (1); 111A–B–C (3); 151A–B–C (9); 153C (2); 153E (1–4); 8 units of related courses worked out with advisor; Physical Activities 1–18A–B, or C (½).

Directing

Dramatic Art 15A–B–C (9); 22 (3); 23 (3); 151A–B–C (9); 153C–D (6); 8 units of related courses worked out with advisor; Physical Activities 1–18A–B, or C (½).

Design and Technical Theater

Dramatic Art 22 (3); 23 (3); 25 (3); 121 (4); Design/Tech emphasis; 125 (3) Costume emphasis; 126 (4); 128 (3); 8 units of related courses worked out with advisor.

Tutorial Program (Dramatic Literature, Criticism, Related Areas)

Work with individual Advisor in selection and approval of program (28 to 35 units).

The Minor

A minimum of 30 units are required which must include the following: Dramatic Art 5, 20, 60, 153A–B, 149A, two courses from 160A–B–C–D–E–F and six additional upper division units in Dramatic Art selected in consultation with a Department Advisor.

THE GRADUATE PROGRAM

Requirements for all graduate degrees are currently under revision. For latest information, please contact the Department of Dramatic Art.

Requirements for the Degree of Master of Arts

1. In addition to the general requirements for admission to graduate status (p. 77), the applicant must satisfy the following departmental requirements.
2. Departmental requirements:

   Plan A (this degree is essentially terminal in nature)

   a. 36 units required of which at least 21 units must be from graduate courses 200 and above.

   b. Required distribution: (1) Research methods, 3 units of DA 200; research and production project; 6 units of DA 299A; (2) Literature, Theory, and History, 15 units from DA 103, 160A–160F, 210A–210E, 272A–272G, 294 sequences of which at least 6 units must be above 200; (3) Theater Arts, 12 units from 110, 121, 122, 123, 125, 126, 127, 128, 130B, 130E, 151A–B–C, 153A–B, 235A–235C of which a minimum of 6 units must be from 235 sequence with 3 units from 235C.

   c. Oral examination of 1½ hours on materials covered in course of study and on research or production project.

   Plan B (for students intending to become candidates for the Ph.D.)

   a. 36 units required of which at least 21 units must be from graduate courses 200 and above.

   b. Required distribution: (1) Research methods, 3 units of DA 200; research investigation, 6 units of DA 299A; (2) Literature, Theory, and History, 15 units from 103, 160A–160F, 210A–210E, 272A–272G, 294 sequences of which at least 6 units must be above 200; (3) Theater Arts, 12 units from 110, 121, 122, 123, 125, 126, 127, 128, 130B, 130E, 151A–151C, 153A–B, 235A–235C offerings of which a minimum of 6 units must be from 235 sequence with 3 from 235C.

   c. Passing of proficiency test in the reading of one foreign language.

   d. Oral examination of 1½ hours on materials covered in course of study and on research investigation.

Requirements for the Degree of Doctor of Philosophy

1. General requirements for admission to graduate status must be fulfilled. (See p. 77.)
2. Departmental requirements:

   a. During his first year the candidate will pursue a course of study leading to the M.A. degree under Plan B. A student entering from another institution with an M.A. awarded without thesis or research investigation may be required to demonstrate research proficiency before proceeding with the doctoral program. A similar demonstration may be required for appropriate theater areas.

b. During the second year the candidate will complete his language requirement and prepare for his comprehensive examination. There are three options for fulfillment of the language requirement.
Option 1: Two languages at a reading level (ETS Graduate Foreign Language Tests). One language must be French, German, or Russian.
Option 2: Any foreign language needed for doctoral research may be pursued to a level of oral and written proficiency. Such proficiency will be attested by the appropriate foreign language department which will administer the test.
Option 3: A student may elect not to offer a language but to offer instead a series of breadth or depth courses effectively tailored to his individual needs by the Graduate Advisor and approved by the Graduate Division. No dissertation utilizing materials in another language would be possible under Option 3.

c. Normally a heavy sequence of courses in dramatic literature as well as in a related field will be taken. The candidate must pass departmental written examinations in dramatic literature, dramatic theory and criticism, history of the theater, history and theory of directing, and his special area of interest. He must pass an oral examination in his related field. Having passed these examinations, he will be permitted to take his comprehensive examination and will be recommended for advancement to candidacy upon successful completion.

d. The third year will normally be spent in the research, writing, and oral defense of his dissertation.

e. Doctoral candidates must have experience as a Teaching Assistant in D.A. 5 or D.A. 60 or in one of the technical courses in his specialty.

CREDENTIAL PROGRAMS

Either a major or minor in Dramatic Art may serve as an appropriate part of the program of studies required for a secondary or junior college teaching credential in California. A student intending to secure a credential should confer with designated counselors in the Department of Dramatic Art and in the Graduate School of Education.

5. Introduction to Acting. (3) I, II, III.
Mr. Winchell

An introduction for majors and non-majors to the multiple problems of the actor's art and craft.

11A–B–C. Voice and Movement Laboratory. (1–1–1) I, II, III. Mrs. Morgenroth

Assignments and exercises to improve and develop the actor's voice and body. Must be taken by those enrolled in Dramatic Art 15A, B, C (beginning acting). But may be taken independently without 15A, B, C with consent of instructor.

12. Fundamentals of Mime. (3)
Mrs. Bergsohn

Practical experience in traditional forms and experimental work in creative studies in mime.

15A. Fundamentals of Acting. (3) I.
Mr. Bettis, Mr. Winchell

Prerequisite: Dramatic Art 5 and consent of instructor.

Basic work in voice, movement, and improvisation to develop the beginning actor's understanding and artistic growth. Dramatic Art 11A *must* be taken in conjunction with this course.

15B. Fundamentals of Acting. (3) II.
Mr. Harrop, Mr. Winchell

Prerequisite: Dramatic Art 15A and consent of instructor.

Further development of the actor's skills with emphasis on scene analysis and presentation. Student must take 11B in conjunction with this course.

15C. Fundamentals of Acting. (3) III.
Mr. Bettis, Mr. Glenn

Prerequisite: Dramatic Art 15B and consent of instructor.

Problems in interpretation and characterization. Student must take 11C in conjunction with this course.

20. Technical Theater Production. (3) II.
Mr. Childs, Mr. Strasburg

Prerequisite: Not open to Dramatic Art Majors.

Introduction to organization and operation of theater facilities and stage equipment. Survey of production materials and methods. Beginning problems in set construction.

21A. Introduction to Construction Techniques. (1) I. Mr. Childs

Introduction to organization and operation of theater facilities and stage equipment, materials and methods of construction, and design concepts.

21B. Introduction to Painting Techniques. (1) II. Mr. Childs

Prerequisite: Consent of instructor.

Materials and methods of construction. Introduction to painting techniques. Discussion of design concepts.

21C. Introduction to Lighting Techniques. (1) III. Mr. Childs
Prerequisite: Consent of instructor.
Introduction to lighting. Basic lighting concepts, equipment and control.

21D–E. Production Laboratory—Tech. (1–1) I, II, III. Mr. Childs, Mr. Strasburg
Prerequisite: Consent of instructor.
Practical application through crewing a production. Should be taken in conjunction with 21A, B, or C.

22. Scenic Design. (3) I Mr. Strasburg
Prerequisite: D.A. 21A, B, C, D, and consent of instructor.
Projects in the interpretation of plays through scenic elements with concentration on the tools of the designer, floor plans, renderings, models and elevations.

23. Stage Lighting Design. (3) II. Mr. Strasburg
Prerequisite: D.A. 21A, B, C, D, E, 22 and consent of instructor.
Lecture-demonstration in instrumentation, color in light, control equipment and basic lighting design theories. Practical application through laboratory assignments and participation in productions.

24A. Costume: Basic Sewing Techniques. (1) I. Mr. Morgan
Examination and execution of fundamental construction techniques (seams, linings, interlinings, facings, closings, hand and finishing work, dyeing, painting, etc.) Accomplished seamstresses exempt by consent of the instructor.

24B. Costume: Basic Pattern Drafting, Cutting, and Fitting. (1) II. Mr. Morgan
Prerequisite: Dramatic Art 24A and consent of instructor.
Construction (in muslin) of contemporary and period garments and accessories from historical sources.

24C. Costume: Basic Design and Shop/Wardrobe Management. (1) III. Mr. Morgan
Prerequisite: D.A. 24A, B, and consent of instructor.
Execution of elementary design exercises in relation to specific dramatic literature culminating in representative renderings with swatches, patterns, and construction information. Consideration of fabric buying, budgeting, shop procedures, wardrobe maintenance.

24D. Production Laboratory: Costume. (1) I, II, III. Mr. Morgan
Prerequisite: Consent of instructor.
Construction of costumes and accessories for departmental productions. Must be taken in conjunction with 24A, B or C.

25. Costume Design. (3) III. Mr. Morgan
Prerequisite: D.A. 24A, B, C, D and consent of instructor.
Exploration of basic elements of design (color, texture, line, mass, etc.) and rendering techniques in a series of weekly exercises related to specific dramatic literature texts.

26. The Art and Craft of Stage Makeup. (1) I, III. Mr. Morgan
Prerequisite: Designed for the Dramatic Art major: consent of instructor.
The materials of makeup. Application of juvenile, character, and period makeup for the stage.

***46. Introduction to Motion Pictures.** (4) I, III.
Introduction to the study of film; analysis of motion picture types and styles: film imagery and syntax; study and discussion of important filmic works.

49A–B. Theater Workshop. (1–1) I, II, III.
Projects in acting and stagecraft. The Staff

60. The Understanding of Drama. (3) I, II, III. Mr. Addison, Mr. Harrop, Mr. Winchell
The general nature of dramatic presentation, including elements of dramatic structure, types of drama, the contributions of the actor, director, designer, technician, and audience.

Upper Division Courses

***101. Children's Theater.** (3) I. Mr. Morgan
Prerequisite: Dramatic Art 60.
Study of existing literature and of special techniques in writing, acting, and staging for Children's Theater.

***102. History of the Theater.** (3) III.
Prerequisite: Dramatic Art 60 and/or consent of instructor.
The history of the playhouse, the practitioner and dramatic production from the Greeks to the present.

103. Black Drama. (3) III. Mr. Bettis
Discussion of Black drama and theater in America treating the contribution and involvement of black artists in the drama and theater in this country.

***104. Playwriting.** (4) II. Mr. Reardon
Dramatic technique and structure; composition of original plays.

110. Repertory Theater. (1–6) I, II, III. Staff
Prerequisite: Consent of instructor.
Description: A repertory theater workshop emphasizing styles of acting culminating in production. Enrollment by audition only. May be repeated up to twelve hours of credit.

111A–B–C. Voice and Movement Laboratory. (1–1–1) I, II, III. Mrs. Morgenroth
Assignments and exercises to improve and develop the actor's voice and body. Must be taken by those enrolled in Dramatic Art 151A, B, C. But may be taken without 151A, B, C, with consent of instructor.

117. Theatre in England. (3) Summer. Mr. Glenn
Designed to teach in depth and out of actual ex-

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* Not to be given, 1971–72.

perience the relations between the scripts of great plays and the best available productions of these plays. Must be taken in conjunction with English 117A or B.

121. Advanced Technical Theater Production. (4) I. Mr. Childs

Prerequisite: D.A. 21A, B, C, D, E and/or consent of instructor.

Stage management and advanced problems in construction, mounting and rigging of stage scenery. Production crew assignments.

122. Advanced Scenic Design. (4) II. Mr. Strasburg

Prerequisite: D.A. 22 and consent of instructor.

Concentration on set design problems of various styles. Projects to include perspective sketches, elevations, and models.

123. Advanced Stage Lighting Design. (4) III. Mr. Strasburg

Prerequisite: D.A. 23 and consent of instructor.

Intensive work in lighting design plots with practical application of projects on stage.

125. Advanced Costume Design. (3) I. Mr. Morgan

Prerequisite: D.A. 25 and consent of instructor.

Execution of costume design for Greek or Elizabethan text. Emphasis on conceptual bases and subsequent characterization.

126. Visual Art for the Theater. (4) II. Mr. Strasburg, Mr. Morgan

Prerequisite: Consent of instructor.

A survey of design and ornament as it pertains to the theater. Includes period styles, architecture, costume and graphic arts.

127. Problems in Technical Theater. (4) I. Mr. Childs, Mr. Strasburg

Prerequisite: Consent of instructor.

Projects in set design, properties, and lighting with special reference to new materials and media.

128. Advanced Production Design. (3) I, II, III. Technical Staff

Prerequisite: Consent of instructor.

Study of total production design to include projects in costume, set, and lighting design. Concentration on the concept of stylistic unity through the visual elements of dramatic production.

130A–B–C–E. Special Studies in Design. (1–1–1–1) I, II, III. The Staff

Prerequisite: Consent of instructor.

General course in technical theatre and design for upper division transfer students and graduates.

146. Aesthetics of film. (4) II. Mr. Sesonske

The nature of film; its relation to the other arts; film genres; elements of film criticism; description, interpretation and evaluation of film.

148. The History and Development of the Motion Picture. (3) II. Mr. Sesonske

Study of world cinema since 1890's. Development of film as an art form and as a cultural, economic, and social force.

149A–B–C–D. Theater Workshop. (1 ea) I, II, III.

Projects in acting and stagecraft.

151A. Advanced Acting: Tragic Style. (3) I. Mr. Glenn

Prerequisite: D.A. 12 and 15C and consent of instructor.

Scenes and exercises re-examining the conventions of serious plays from selected periods of dramatic art. Students must take 111A in conjunction with this course.

151B. Advanced Acting: The Craft of Comedy. (3) II. Mr. Addison

Prerequisite: D.A. 151A and consent of instructor.

Scenes and exercises in various modes of comic acting ranging from farce to high comedy. Dramatic Art 111B must be taken in conjunction with this course.

151C. Advanced Acting: Modern Trends. (3) III. Mr. Winchell

Prerequisite: Dramatic Art 151B and consent of instructor.

Study and performance of contemporary acting developments. Dramatic Art 111C must be taken with this course.

153A. Theory of Directing. (2–4) I. Mr. Glenn

Prerequisite: Senoir Dramatic Art majors and minors only. Consent of instructor.

The director's initial approach to the play: research, textual study, and formal analysis.

153B. Techniques of Directing. (2) II. Mr. Addison

Prerequisite: D.A. 153A and consent of instructor.

Lectures and demonstrations of directorial skills in composition, movement and business.

153C. Techniques of Directing: Laboratory. (2) II. Mr. Addison

Prerequisite: D.A. 153A and consent of instructor.

Exercises and scenes employing directorial skills. May be taken only in conjunction with 153B.

153D. Projects in Directing. (4) III. Mr. Glenn

Prerequisite: D.A. 153B, C and consent of instructor. Directing emphasis only.

Full directorial responsibility for the direction of a one-act play.

153E. Projects in Acting. (1–4) III. Mr. Harrop

Prerequisite: D.A. 153C, consent of instructor. Acting emphasis only.

160A. Development of Dramatic Art. (4) I. Mr. Addison

A study of the drama as a manifestation of cultural development, in terms of dramatic structure, the evolving physical theater and artistic styles, and critical theory from its origin in the Western World through the Greeks to the Roman Empire.

160B. Development of Dramatic Art. (4) II. Mr. Winchell
A study of the drama as a manifestation of cultural development, in terms of dramatic structure, the evolving physical theater and artistic styles, and critical theory from the Middle Ages to the Jacobean period, focussing upon the development of the Renaissance theater in England and Spain.

160C. Development of Dramatic Art. (4) III. Mr. Harrop
A study of the drama as a manifestation of cultural development, in terms of dramatic structure, the evolving physical theater and artistic styles, and critical theory from the Jacobean period through the development of Neo-Classicism in France and Restoration England.

160D. Development of Dramatic Art. (4) I. Mr. Johnston
A study of the drama as a manifestation of cultural development, in terms of dramatic structure, the evolving physical theater and artistic styles, and critical theory from 1700 to the rise of Realism, emphasizing the Romantic movement, Melodrama, and the emergence of the "well-made play."

160E. Development of Dramatic Art. (4) II. Mr. Hatlin
A study of the drama as a manifestation of cultural development, in terms of dramatic structure, the evolving physical theater and artistic styles, and critical theory from Ibsen to the end of World War I, examining divergent trends in the Modern theater.

160F. Development of Dramatic Art. (4) III. Mr. Glenn
A study of the drama as a manifestation of cultural development, in terms of dramatic structure, the evolving physical theater and artistic styles, and critical theory from the end of World War I to the present, treating various aspects of the Contemporary theater.

190. Production Administration. (3) I, II, III.
Prerequisite: D.A. 21 series, D.A. 24 series. Consent of instructor, and Department Chairman's approval.
Workshop for advanced student functioning as assistants to directors, designers, and technical directors. Portfolio, promptbook, or paper required. May be repeated up to six hours of credit.

194. Group Studies for Advanced Students. (1–4) I, II, III.
Prerequisites: senior standing and consent of the Department Chairman.
Description: Intensive study, research, and project preparation. May be repeated up to eight hours credit.

199. Independent Studies in Dramatic Art. (1–5) I, II, III. The Staff
199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200. Introduction to Graduate Study in Dramatic Art. (3) I. Mr. Reardon
Prerequisite: graduate standing.
Discussion and utilization of various research techniques. Bibliographical work accentuated.

210A. Tragic Drama. (3) I. Mr. Hatlen
Prerequisite: graduate standing.
Tragic masterpieces from Greeks to the present.

210B. Comic Drama. (3) II. Mr. Hatlen
Prerequisite: graduate standing.
Comic masterpieces from Greeks to the present.

210C. Drama of Mixed Genres. (3) III. Mr. Johnston
Prerequisite: graduate standing.
Masterpieces of intermingled forms from Greeks to the present.

210D. American Theater and Drama to 1895. (3) II. Mr. Reardon
Prerequisite: graduate standing.
From origins of both to the rise of realism and the Theatrical Syndicate.

210E. American Theater and Drama from 1895. (3) III. Mr. Reardon
Prerequisite: graduate standing.
From the Theatrical Syndicate and the new art and drama movement to the present day.

235A. Advanced Problems in Directing. (3) I, II, III. Mr. Harrop
Prerequisite: graduate standing.
Discussion of advanced problems in directing; practical application and projects. May be repeated up to six hours credit.

235B. Advanced Problems in Design. (3) I, II, III.
Prerequisite: graduate standing.
Discussion of advanced problems in design; practical application and projects. May be repeated up to six hours credit.

235C. Advanced Problems in Theater Practice. (1–12) I, II, III. The Staff
Prerequisite: graduate standing.
Discussion of problems in repertory; practical application of specialized individual projects. A student may take no more than 6 units on the M.A. and no more than 6 units on the Ph.D.

255. Seminar in Film. (3) III. Mr. Sesonske
Prerequisite: Dramatic Art 46 or Philosophy 136.
Elements of film and its critical vocabulary, studied through the examination of the work of a distinguished director. Typical topics would include: visual style, expressive movement in film, character, acting, symbolism, describing a film, reality and fantasy, photography.

272A. Seminar in Theories of Acting and Directing. (3) II. Mr. Addison
Prerequisite: graduate standing.
Examination of the major theoretical works of the past and present on acting and directing.

272B. Seminar in Dramatic Theory: Aristotle to Lessing. (3) I. Mr. Reardon, Mr. Hatlen
Prerequisite: graduate standing.
Detailed study of theories from *The Poetics* to the *Hamburg Dramaturgy*.

272C. Seminar in Modern Dramatic Theory. (3) II. Mr. Johnston

Prerequisite: graduate standing.

Major theories and concepts from Lessing to Langer.

272D. Seminar in History of Physical Theater and Design. (3) II. The Staff

Prerequisite: graduate standing.

Examination of known facts and scholarly surmises on physical theater from ancient Greece to the Renaissance.

272E. Seminar in History of Physical Theater and Design. (3) III. The Staff

Prerequisite: graduate standing.

Examination of facts and theories on the physical theater from Renaissance to present.

272F. Seminar in Non-Western Drama and Theater. (3) III. Mr. Hatlen

Prerequisite: graduate standing.

Oriental and Indian styles in drama and theater.

272G. Seminar in Dramatic Literature and Theater History. (3) I, II, or III. Staff

Prerequisite: graduate standing.

Varies in content from year to year.

294. Studies in Drama. (3) III. Mr. Johnston

Prerequisite: Graduate standing.

Studies in Drama utilizing whenever possible visiting scholars and specialists in theatre and drama. Content variable. Will be offered irregularly.

299A. Independent Study. (1–27) I, II, III.

Prerequisite: graduate standing. The Staff

For research not related to thesis (or dissertation) in progress. A student may take no more than 12 units on the M.A. and no more than 15 units on the Ph.D.

299B. Independent Study. (1–10) I, II, III.

Prerequisite: graduate standing. The Staff

Thesis and dissertation.

Related Courses in Another Department

Education

290. Curriculum and Instructional Procedures and Materials Used in the Teaching of Dramatic Art. (3) I, II. The Staff

292. A–B–C–D. Student Teaching: Dramatic Art. (3–3–3–3) I, II, III. The Staff

293A. Problems Seminar in the Dramatic Art Major. (1) I, II, III. The Staff

293B. Problems Seminar in the Dramatic Art Minor. (1) I, II, III. The Staff

DANCE

Rona Sande, M.Ed., *Associate Professor of Dance (Director).*
Patricia Sparrow, Ph.D., *Associate Professor of Dance.*

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Isa Partsch Bergsohn, *Lecturer in Dance.*
Emma Lou O'Brien, *Lecturer in Dance.*
Jerry Grimes, *Associate in Dance.*

THE MAJOR

The major in Dance offers the opportunity for an area of emphasis within a liberal arts education, or for preparation in professional work. Course offerings are geared to include the theoretical and technical aspects of dance, as well as a breadth of experience in related arts and sciences. Students who are interested in securing teaching credentials should confer with the Director of Dance regarding the completion of additional requirements.

Requirements for the Major

For completion of the Bachelor of Arts degree in Dance the student must complete 180 units of University work, including all requirements as outlined by the College of Letters and Science and the major course as outlined below. Technical ability and theoretical knowledge must be demonstrated to the satisfaction of the Dance faculty before entrance to upper division dance study.

Specific courses from the General Education sequence which are required for the Dance major are as follows: Art 1, or 150, Zoology 25 & 25L or 40 & 40L, Music 15.

Preparation for the major (Lower Division): Dance 43, 45, 46A–B–C–D–E–F, 47A–B–C; Dramatic Art 5, 60.

The Major (Upper Division): Dance 151A–B–C, 152A–B, 153, 154, 155, 156A–B–C–D–E–F, 157, 159A–B; 6 units elected from the following: Dance 158, 159C–F, 160, 161, 199; Dramatic Art 151A, 126, 149.

It is recommended that the entering student contact the Dance faculty for program planning advice before enrolling, in order to insure the best possible sequence of study.

The Minor

A minimum of 30 units is required which must include the following: Dance 45, 46D–E–F, 47A–B, 151A–B, 152A, 159A and 8 additional upper division units in Dance selected in consultation with the Director of Dance.

DANCE

Lower Division Courses

43. Rhythmic Form and Analysis. (2) I.
Mrs. O'Brien

Analysis of the temporal element of movement with exploration of rhythmic devices in dance composition.

44. Fundamentals of Movement Technique. (1) I, II, III.
Mr. Grimes

An introduction to movement as an expressive medium.

45. History and Appreciation of Dance. (3) I, II, III.
Mrs. Bergsohn

A cultural background and appreciation of the various forms of dance, and the relation of dance to other art forms from the primitive expression to contemporary trends.

46A–B–C–D–E–F. Modern Dance. (2 ea.) I, II, III.
Mrs. Bergsohn

Analysis and exploration of movement as an expressive medium.

47A–B–C. Ballet. (2–2–2) I, II, III. The Staff

Analysis and exploration of technical and expressive elements of the ballet.

49A–F. Dance Workshop. (1 ea.) I, II, III.
The Staff

Prerequisite: Dance 46A or consent of instructor.
Projects in performance, production, choreography and directing.

Upper Division Courses

151A–B–C. Choreography. (3–3–3) I, II, III.
Prerequisite: Dance 46C. Miss Sparrow

Analysis of the elements of choreographic form; styles and trends with experience in development of dance studies; theory and technique of advanced group choreography.

152A–B. Labanotation. (3–3) I, II.
Mrs. O'Brien

Study of the elements of dance notation and interpretation of movement through reading and writing of the dance score.

153. Ethnic Dance Forms. (3) II. Mr. Grimes
Prerequisite: Dance 46A or 47A.

A survey of predominant cultural dance forms.

154. Accompaniment for Dance. (3) III.
Prerequisite: Dance 43. Mrs. O'Brien

Study in accompaniment for dance, including music sources, improvisation, percussion and sound experimentation.

155. Organization of Dance Production. (3) II. Miss Sparrow
Prerequisite: Consent of instructor.

Theory and techniques of organization, direction and production of the public dance performance.

156A–B–C–D–E–F. Advanced Modern *Dance.* (2–2–2) I, II, III. Miss Sande
Prerequisite: Dance 46F.

Advanced analysis and exploration of dance as an expressive medium.

157. Criticism and Analysis. (3) III.
Prerequisite: Consent of instructor. Miss Sande

Advanced analysis of choreographic works with practical application in viewing, reviewing and criticism.

158. Theory of Dance. (3) I. Miss Sande
Prerequisites: 46C, 151A.

History and theory of dance. An examination and analysis of the literature and materials of dance with practical study in the leading of group movement experiences.

159A–F. Dance Workshop. (1 ea.) I, II, III.
The Staff
Prerequisite: Dance 46A or consent of instructor.

Advanced projects in performance, production, choreography and directing.

160. Dance Repertory. (2) II. Miss Sparrow
Prerequisite: Dance 156A or consent of instructor.

The study and performance of major choreographic works.

161. Jazz and Theatre Forms. (2) III.
Prerequisite: Dance 46A or 47A. Mr. Grimes

Jazz as an expressive idiom and dance utilized in theatrical and music productions.

198. Group Studies in Dance (1–4) I, II, III.
Miss Sparrow
Prerequisite: consent of instructor and department.

Group projects in selected areas of emphasis.

199. Independent Study in Dance. (1–5) I, II, III. The Staff
Prerequisite: Consent of instructor and department.

Projects in chorography or dance research. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

EASTERN LANGUAGES

Chauncey S. Goodrich, Ph.D., *Associate Professor of Classical Chinese (Vice-Chairman in charge of Eastern Languages, Department of Germanic and Slavic Languages and Literatures.)*
Robert Hetzron, Ph.D., *Associate Professor of Hebrew.*
Robert L. Backus, Ph.D., *Assistant Professor of Japanese.*
Kenneth Pai, M.F.A., *Assistant Professor of Chinese.*
Kashiki Tanaka, Ph.D., *Assistant Professor of Japanese.*
Charles Briody, M.A., *Lecturer in Yoruba.*
Ali Ahmed Jahadhmy, *Lecturer in Swahili.*
Charles Wendell, Ph.D., *Lecturer in Arabic.*
Keiko E. Mochizuki, B.A., *Associate in Japanese.*
Pauline Wong, M.A., *Associate in Chinese.*

The Minor in Chinese or Japanese or Hebrew

Students wishing to avail themselves of the minor in Chinese, Japanese or Hebrew should consult the Vice-Chairman, Eastern Languages.

The minor in Chinese consists of a minimum of thirty quarter units, of which at least twelve must be in upper division Chinese. The following courses are recommended: Chinese 110A–B, Chinese 112, Chinese 140.

The minor in Japanese consists of thirty-six units, comprising Japanese 1–6 and Japanese 120A–B–C.

The minor in Hebrew will consist of thirty units in Hebrew language and literature, comprising at least sixteen units of upper division work from Hebrew 110ABC, 120ABC, 130ABC, Semitics 101ABC, 120ABC and approved courses on Judaism offered in the Department of Religious Studies.

AFRICA

Swahili

Lower Division Courses

1. Elementary Swahili. (4) I. Mr. Jahadhmy

2. Elementary Swahili. (4) II. Mr. Jahadhmy

3. Elementary Swahili. (4) I, III. Mr. Jahadhmy

4. Intermediate Swahili. (4) I, II. Mr. Jahadhmy

5. Intermediate Swahili. (4) II, III. Mr. Jahadhmy

6. Intermediate Swahili. (4) III. Mr. Jahadhmy

101ABC. Advanced Swahili Literature, Composition and Translation. (4–4–4) AI, BII, CIII. Mr. Jahadhmy

Prerequisite: Swahili 5 or 6

Works in modern and classical Swahili literature will be combined with a study of literary compositions and a study of Swahili-English literary and oral translation and vice versa.

Yoruba

Lower Division Courses

***1. Elementary Yoruba.** (4) I. Mr. Briody

***2. Elementary Yoruba** (4) II. Mr. Briody

***3. Elementary Yoruba.** (4) III. Mr. Briody

4. Intermediate Yoruba. (4) I. Mr. Briody

5. Intermediate Yoruba. (4) II. Mr. Briody

6. Intermediate Yoruba. (4) III. Mr. Briody

NEAR EAST

Arabic

Lower Division Courses

1. Elementary Arabic. (4) I. Mr. Wendell

2. Elementary Arabic. (4) II. Mr. Wendell
(Continuation of 1.)

3. Elementary Arabic. (4) III. Mr. Wendell
(Continuation of 2.)

4. Intermediate Arabic. (4) I. Mr. Wendell
(Continuation of 3.)

5. Intermediate Arabic. (4) II. Mr. Wendell
(Continuation of 4.)

6. Intermediate Arabic. (4) III. Mr. Wendell
(Continuation of 5.)

Upper Division Courses

110A–B–C. Introduction to Arabic Literature. (2–2–2) A I, B II, C III. Mr. Wendell

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* Not to be given 1971–72.

***140A–B–C. Topics in the Islamic Culture.** (4–4–4) A I, B II, C III. Mr. Wendell

Each quarter will be devoted to a single broad topic in the general field of Arabic culture, pre- or post-Islamic, as it is reflected in the available literature in translation. 140B topic: Islamic religion; see Religious Studies 140.

Hebrew

Lower Division Courses

1. Elementary Hebrew. (4) I. The Staff

2. Elementary Hebrew. (4) II. The Staff
(Continuation of 1.)

3. Elementary Hebrew. (4) III. The Staff
(Continuation of 2.)

4. Intermediate Hebrew. (4) I. Mr. Hetzron
(Continuation of 3.)

5. Intermediate Hebrew. (4) II. Mr. Hetzron
(Continuation of 4.)

6. Intermediate Hebrew. (4) III. Mr. Hetzron
(Continuation of 5.)

Upper Division Courses

110A–B–C. Introduction to Hebrew Literature. (2–2–2) B III. Mr. Hetzron

***120A–B–C. Introductory Biblical Hebrew.** (2–2–2) A I, B II, C III. Mr. Hetzron

Prerequisites: Hebrew 1, 2, 3 or equivalent.

Grammatical features of Biblical Hebrew, elementary reading in the Hebrew Bible.

***130A–B–C. Readings in Hebrew Poetry.** (2–2–2) Mr. Hetzron

Prerequisite: Hebrew 6 or equivalent.

Reading and literary analysis of three periods of Hebrew poetry: A. Golden Age, 11th century Spain; B. Beginnings of Modern Hebrew, Biolik, Tchernichovsky; C. Contemporary poets.

199. Independent Studies in Hebrew. (1–5) I, II, III. Mr. Hetzron

199 courses are limited to 5 units in one quarter and 12 units total.

Semitic Languages

Upper Division Courses

101A–B–C. The Structure of the Semitic Languages. (2–2–2) A I, B II, C III. Mr. Hetzron

***120A–B–C. Historical Semitic Linguistics.** (3–3–3) Mr. Hetzron

An introduction to the history of the Semitic languages, reconstruction of Proto-Semitic step-by-step regressively by confronting all the Semitic languages. A. Phonemic system and phonetic developments; B. Morphology and syntax; C. Specific problems in individual groups.

FAR EAST

Chinese

Lower Division Courses

1. Elementary Modern Chinese. (4) I. Mr. Pai

2. Elementary Modern Chinese. (4) II. Mr. Pai
(Continuation of 1.)

3. Elementary Modern Chinese. (4) III. Mr. Pai
(Continuation of 2.)

4. Intermediate Modern Chinese. (4) I. Mrs. Wong
(Continuation of 3.)

5. Intermediate Modern Chinese. (4) II. Mrs. Wong
(Continuation of 4.)

6. Intermediate Modern Chinese. (4) III. Mrs. Wong
(Continuation of 5.)

8A–B–C. Chinese Conversation. (2–2–2) A I, B II, C III. Mr. Pai

Prerequisite: Completion of Chinese 3 or equivalent.

11. Elementary Classical Chinese. (4) II. Mr. Goodrich
Prerequisite: Chinese 1.

12. Elementary Classical Chinese. (4) III. Mr. Goodrich
(Continuation of 11.)

13. Intermediate Classical Chinese. (4) I. Mr. Goodrich
(Continuation of 12.)

14. Intermediate Classical Chinese. (4) II. Mr. Goodrich
(Continuation of 13.)

15. Intermediate Classical Chinese. (4) III. Mr. Goodrich
(Continuation of 14.)

Upper Division Courses

110A–B. Survey of Classical Chinese Literature. (2–2) A I, B II. Mr. Goodrich

Traditional literature from the *Shih ching* to the Yüan Dynasty. Readings, lectures and discussions in English.

112. Survey of Modern Chinese Literature. (3) III. Mr. Pai

The literature of modern China from the *Hung-lou-meng* to the present, emphasizing the literature of the May Fourth Movement. Readings, lectures and discussions in English.

120A–B. Readings in Modern Social and Political Writings. (4–4) A I, B II. Mrs. Wong

124A–B–C. Readings in Modern Chinese Literature. (4–4–4) A I, B II, C III.
Prerequisite: Chinese 6 Mr. Pai, Mrs. Wong

Readings in the Chinese language, in fiction, drama, and poetry written after 1919.

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* Not to be given 1971–72.

130A–B–C. Advanced Classical Chinese. (4–4–4) A,I, B,II, C III. Mr. Goodrich

Prerequisite: Chinese 15.

Will be offered if enough students are interested, I, II, III.

***131. Selections from Classical Prose.** (3) I. Mr. Goodrich

***132. Selections from Classical Poetry.** (3) II. Mr. Goodrich

***140. Topics in Chinese Culture.** (4) III. Mr. Goodrich

Various aspects of Chinese traditional culture, emphasizing religion, ritual and the Emperor.

199. Independent Studies in Chinese. (1–5) The Staff

199 courses are limited to 5 units in one quarter and 12 units total.

Japanese

Lower Division Courses

1. Elementary Japanese. (4) I. Mrs. Mochizuki

2. Elementary Japanese. (4) II. (Continuation of 1.) Mrs. Mochizuki

3. Elementary Japanese. (4) III. (Continuation of 2.) Mrs. Mochizuki

4. Intermediate Japanese. (4) I. Mr. Backus (Continuation of 3.)

5. Intermediate Japanese. (4) II. Mr. Backus (Continuation of 4.)

6. Intermediate Japanese. (4) III. Mr. Backus (Continuation of 5.)

8. ABC. Japanese Conversation. (2–2–2) AI, BII, CIII. Mrs. Mochizuki

Prerequisite: Japanese 3 or equivalent.

Upper Division Courses

101. The Structure of Classical Japanese. (2) III. Mr. Backus

Prerequisite: Japanese 5 or equivalent.

Grammar of the classical language. Some reading from a connected classical text.

Japanese 105A–B–C. Composition and Conversation. (4–4–4) A I, B II, C III. Mr. Backus, Miss Tanaka

Prerequisite: Japanese 6 or equivalent.

Controlled composition and conversation based on a text. This course will complement and run parallel with the 120 series. 120ABC will concentrate on reading (the passive aspect) and 105ABC will concentrate on production in written and oral form (the active aspect).

110A–B. Introduction to Japanese Literature. (2–2) A I, B II. Mr. Backus

A survey of Japanese literature. Readings, lectures and discussions in English.

112. Survey of Modern Japanese Literature. (2) III. Mr. Backus

A survey of Japanese literature after contact with the West from 1868 to the present. Readings are in English translation.

120A–B–C. Readings in Modern Japanese. (4–4–4) A I, B II, C III. Miss Tanaka

Prerequisite: Japanese 6 or equivalent.

140A–B–C. Topics in Japanese Culture. (4–4–4) A I, B II, C III. Miss Tanaka

Distinctive features of Japanese culture approached through the Japanese way of thinking, comprising Shinto (A), traditional thoughts (B), and modern Japanese thought (C). Readings are in English.

199. Independent Studies in Japanese. (1–5). The Staff

199 Courses are limited to 5 units in one quarter and 12 units total.

Courses in Other Departments

Sanskrit: See Religious Studies 159A–B–C.

Languages of the Far East: See Linguistics 120A.

COURSES OFFERED IN ENGLISH TRANSLATION

(Courses for which no knowledge of a foreign language is required.)

Arabic

110A–B–C. Introduction to Arabic Literature. (2–2–2) A I, B II, C III. Mr. Wendell

***140A–B–C. Topics in the Islamic Culture.** (4–4–4) A I, B II, C III. Mr. Wendell

Each quarter will be devoted to a single broad topic in the general field of Arabic culture, pre- or post-Islamic, as it is reflected in the available literature in translation. 140B topic: Islamic religion; see Religious Studies 140.

Chinese

110A–B. Survey of Classical Chinese Literature. (2–2) A I, B II. Mr. Goodrich

Traditional literature from the *Shih ching* to the Yüan Dynasty. Readings, lectures and discussions in English.

112. Survey of Modern Chinese Literature. (3) III. Mr. Pai

The literature of modern China from the *Hung-lou-meng* to the present, emphasizing the literature of the May Fourth Movement. Readings, lectures and discussions in English.

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* Not to be given 1971–72.

***140. Topics in Chinese Culture.** (4) III. Mr. Goodrich

Various aspects of Chinese traditional culture, emphasizing religion, ritual and the Emperor.

Hebrew

110A–B–C. Introduction to Hebrew Literature (2–2–2) B III. Mr. Hetzron

Japanese

110A–B. Introduction to Japanese Literature. (2–2) A I, B II. Mr. Backus

A survey of Japanese literature from its beginnings to 1868. Readings, lectures and discussions in English.

112. Survey of Modern Japanese Literature. (2) III. Mr. Backus

A survey of Japanese literature after contact with the West from 1868 to the present.

140A–B–C. Topics in Japanese Culture. (4–4–4) A I, B II, C III. Miss Tanaka

Distinctive features of Japanese culture approached through the Japanese way of thinking, comprising Shinto (A), traditional thought (B), and modern Japanese thought (C). Readings are in English.

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* Not to be given 1971–72.

ECONOMICS

Alec P. Alexander, Ph.D., *Professor of Economics.*
Mortimer Andron, Ph.D., *Professor of Economics.*
William F. Kennedy, Ph.D., *Professor of Economics.*
[1]Walter J. Mead, Ph.D., *Professor of Economics.*
[4]Robert E. Weintraub, Ph.D., *Professor of Economics.*
J. Frederick Halterman, Ph.D., *Professor of Economics, Emeritus.*
Robert L. Crouch, Ph.D., *Associate Professor of Economics.*
M. Bruce Johnson, Ph.D., *Associate Professor of Economics (Chairman of the Department).*
R. Robert Russell, Ph.D., *Associate Professor of Economics.*
[1]John C. Hambor, Ph.D., *Assistant Professor of Economics.*
Robert H. McGuckin, III, Ph.D., *Assistant Profesor of Economics.*
Lloyd J. Mercer, Ph.D., *Assistant Professor of Economics.*
W. Douglas Morgan, Ph.D., *Assistant Professor of Economics.*
Morris Norman, Ph.D., *Assistant Professor of Economics.*
Llad Phillips, Ph.D., *Assistant Professor of Economics.*
John E. Pippenger, Ph.D., *Assistant Professor of Economics.*
Perry Shapiro, Ph.D., *Assistant Professor of Economics.*
James J. Sullivan, Ph.D., *Assistant Professor of Economics.*
Harold L. Votey, Jr., Ph.D., *Assistant Professor of Economics.*

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Andrew J. Winnick, Ph.D., *Assistant Professor of Economics.*
Peter J. McCabe, A.B., *Acting Assistant Professor of Economics.*
Maxwell C. Pellish, M.A., *Lecturer in Economics.*

THE MAJOR

The undergraduate program in economics is designed to serve several objectives. In combination with other courses of the College of Letters and Science, it offers the opportunity for general cultural development. It supplies basic training to students planning careers in business or government and offers valuable preparation for such professions as law and journalism. The program also provides a foundation for graduate work in economics or business administration.

Preparation for the Major

Lower Division requirements: Students may satisfy the Statistics-Mathematics requirement by choosing one of three tracks: (a) Math 34 AB with Economics 5; (b) Math 34ABC; or (c) Math 3ABC with either Economics 5 or Math 33. Math 33 may not be substituted for Economics 5 if track (a) is elected. In addition Economics 1 and Economics 2 are required. Upper Division Students transferring to the Economics major from another major or another institution may take Economics 109 rather than Economics 1 and 2. Also, Economics 109 may be taken concurrently with Economics 100A and/or 101A.

Preparation for Graduate Training in Economics or Business

It is recommended that students interested in graduate study in economics or business include the following economics courses in their undergraduate training: 100C, 101C, 141, 142, and 143. In addition, it is recommended that students take courses in calculus, matrix theory, differential equations and analysis.

Preparation for a Career in Operations Research

It is recommended that students interested in preparation for a career in business with an emphasis in operations research include the following economics courses in their program:

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[1] Absent on Leave, Fall 1971.
[4] Absent on Leave, 1971–72.

100C, 133, 134, 141, 142, and 143. In addition, mathematics topics listed above for graduate school preparation are suggested.

Requirements for the Major

Thirty-six units are required in the upper division: Economics 100A–100B and Economics 101A–101B, plus 20 units in other upper division economics. Economics 100C and 101C are recommended. Economics 106A–106B, 109, 110, 115, 118, and 133 do not count toward the 20 unit upper division requirement.

Combination Social Sciences Major

Students interested in obtaining a major in the combined social sciences, see listing under "Social Sciences."

The Minor

Lower division required courses: Economics 1 and Economics 2. Upper division students may take Economics 109 in the place of Economics 1 and Economics 2. Upper division required courses: 20 units including 100A, 100B, 101A, and 8 additional upper division units in economics. Economics 106A–B, 109, 110, 115, 118 and 133 do not count toward the 20-unit upper division requirement.

THE DEGREE OF MASTER OF ARTS

Requirements

An undergraduate major in economics is not required for admission to the graduate program, but the department does require that specific courses—particularly economic theory—be passed with distinction. At least one quarter of calculus is also required. With the consent of the department, students with an inadequate undergraduate background in economics can be admitted, but they will be required to remedy any deficiencies by taking appropriate undergraduate courses.

Students may elect to work under either of two plans. The respective requirements of these plans are:

Plan IIA

1. 36 units of course work, 12 units of which may be satisfied by upper division undergraduate courses.
2. Economics 205, Economics 204A, and Economics 142 are required.
3. A comprehensive oral examination in economic theory and *two* elective fields.

Plan IIB

1. 36 units of course work consisting of all the courses typically taken in the first year of the Ph.D. program.
2. A comprehensive oral examination in micro-economic theory, macro-economic theory, and one elective field.

Plan IIA is designed for students who enter with an M.A. degree specifically in mind. Plan IIB is designed to allow students in the Ph.D. program to acquire an M.A. degree after they have taken an appropriate number of primarily Ph.D. courses and an oral examination.

There is no language requirement for the M.A. degree. A well-prepared student can obtain the M.A. degree in one year.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Requirements

An undergraduate major in economics is not required for admission to the graduate program, but the department does require that specific courses—particularly economic theory—

be passed with distinction. At least one quarter of calculus is also required; prospective students, however, are advised to take as much mathematics as possible, particularly calculus and matrix algebra. With the consent of the department, students with an inadequate undergraduate background in economics can be admitted, but they will be required to remedy any deficiencies by taking appropriate undergraduate courses.

There are no specific *course* requirements for the Ph.D. degree. Five *fields* are required of which two are specified: 1) economic theory and 2) quantitative economics. Three additional fields will be selected from the list of twelve electives presently offered by the Department. With the Department's approval, one elective may be chosen from an outside discipline.

Normally, after two years of course work a student is prepared to take his General Examinations in economic theory, quantitative economics, and his three elective fields (except that a student need *not* take a General Examination in *one* elective field if he passed both courses in that field with a grade of A– or better).

After passing the General Examinations, the student commences work on his dissertation.

There is no language requirement for the Ph.D. degree. A well-prepared student can obtain the Ph.D. degree in three years.

THE DEGREE OF CANDIDATE IN PHILOSOPHY (C. Phil.)

Requirements

On advancement to candidacy for the Ph.D. degree (i.e., after having completed his General Examinations, but before completing his dissertation), a student may petition for the award of a C.Phil. degree. This is specifically designated as a non-terminal degree. Eligibility for the C.Phil. degree is limited to a period of seven years following advancement to candidacy for the Ph.D. degree.

A well-prepared student can obtain a C.Phil. degree in two years.

TEACHING CREDENTIALS

Either a major or a minor in economics may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of Economics and in the Graduate School of Education.

ECONOMICS

Lower Division Courses

1. Principles of Economics—Micro. (4) II. The Staff

An introduction to micro-economic analysis, institutions and policies. Econ 2 may be taken before Econ 1.

2. Principles of Economics—Macro. (4) II, III. The Staff

An introduction to macro-economic analysis, institutions and policies.

5. Introduction to Economic Statistics. (4) I, II. Mr. Votey, Mr. McGuckin

Two lectures and one 2-hour laboratory section weekly. Introduction to probability and its applications; sampling, estimation, hypothesis testing and simple regression.

Upper Division Courses

Prerequisite to all upper division courses except Economics 110 and 115: Economics 1 and Economics 2, or 109, or consent of the instructor. It is strongly recommended that Economics 5 be taken prior to enrollment in the 100 and 101 series.

100A–B–C. Micro-Economic Theory. (4–4–4) 100A: I, II. 100B: II, III. 100C: III. The Staff

100A. Prerequisite: Mathematics 32 or 3A. Demand, production, and competition.

100B. Prerequisite: Economics 100A. Product and input markets, welfare.

100C. Prerequisite: Economics 100B. Elements of linear programming, input-output analysis and game theory.

101A. Static Macroeconomics. (4) I, II. The Staff

Prerequisite: Mathematics 32 or 3A.

Contemporary analysis of income, employment, price level and public policy using a static general equilibrium framework.

101B. Dynamic Macroeconomics. (4) II, III.

Prerequisite: Economics 101A. The Staff

Analysis of dynamic macroeconomic systems, including economic fluctuations, growth and stabilization policy.

101C. Advanced Macroeconomics. (4) I, III. The Staff

Prerequisites: Economics 101B and 100B.

Selected topics in short run and long run dynamic economic theory and policy.

103. History of Economic Thought. (4) II. Mr. Kennedy

The history of economic thought in relation to its social setting from ancient Greece and Rome to Marxism and Marginalism in the nineteenth century.

†106A–B. Accounting Concepts. (4–4) I, II. Mr. Pellish

Concepts basic to accounting theory and practice as related to the various types of business organization, cost accounting, budgets, and analysis of financial statements.

107. Comparative Economic Systems. (4) II, III. Mr. Andron

Prerequisite: Economics 100B.

Socialism, fascism, and capitalism contrasted with regard to economic decision-making, organization of production, mechanism of exchange, banking and investment, distribution of income, status of labor, international trade, and public finance.

108. Institutional Economics. (4) III. Mr. Kennedy

A history of the economic thought of the American institutional school of Veblen, Commons, and Mitchell, and their successors in Heterodox and Radical Economics. Not to be offered 1971–72.

109. Introduction to Economics. (4) I, II, III. The Staff

Not open to those who have taken Economics 1 and Economics 2. Economics majors may enroll in Economics 109 only if they have upper division standing. Serves as a prerequisite for upper division economics courses.

Intensive study of economic principles.

†110. Contemporary Economic Problems. (4) I, III. The Staff

Current social-economic problems will be analyzed, each by a qualified staff member. Topics may include the following: the economics of poverty, discrimination, war, monopoly, the stock market, gold, inflation-deflation, economic growth, and alternative economic systems.

112. Economic History of Europe. (4) II. Mr. Mercer

Survey of the economic development of Europe from the Middle Ages to recent times.

113. Economic History of the United States. (4) III. Mr. Mercer

The economic development of the United States from the period of settlement to the present time.

114. Economic Development. (4) I, III. Mr. Votey, Mr. Mercer

Applications of economic theory to the problems of developing nations.

†115. Environmental Economics. (4) III. The Staff

Prerequisites: Economics 1 and 2, or Environmental Studies 3 and 4.

Economic analysis of environmental decision-making. Determination of the optimum level of pollution. Examination of the concept of externalities, estimation of social versus private costs and benefits, common property resources, welfare theory and production theory applied to problems of pollution.

116. Industrial Organization and Public Policy. (4) II, III. Mr. Mead, Mr. McGuckin

Prerequisite: Economics 100B.

Analysis of competition, monopolistic competition, oligopoly and monopoly theories and practices.

117. The Soviet Economy. (4) I, II. Mr. Mercer

Prerequisites: Economic theory courses through 100B and 101B.

An analytical and statistical survey of the organization and operating principles of the Soviet economy in the light of geographic and historical backgrounds.

†118. Legal Analysis for Business Management. (4) III. The Staff

The essentials of analysis of the law of contracts and their economic significance.

120. Urban and Regional Economics. (4) I, III. Mr. Shapiro, Mr. Winnick

Economic analysis applied to current urban and regional problems.

124. Business Ethics and Social Responsibility. (4) I. Mr. Kennedy

Application of ethics to the decisions of economic life; the responsibilities of individuals and economic organizations.

130. Public Finance. (4) I. Mr. Morgan, Mr. Shapiro

Prerequisite: Economics 100A and 101A.

Fiscal theory and policy. Incidence and effects of taxation, government expenditure programs and public debt operations.

†133. Investments. (4) I, III. Mr. Andron

Sources and demand for investment capital, salient characteristics of governmental and corporate securities, operation of security markets, determination of investment policy, and procedures for analysis of securities.

134. Financial Management. (4) I, II. Mr. Andron

Prerequisite: Economics 100B.

Analysis and management of the flow of funds through an enterprise. Sources and application of funds, types and sources of long term capital. Introduction to the supply of investment funds and the organization of capital markets.

135. Monetary Economics. (4) II. Mr. Sullivan

Prerequisite: Economics 101B.

Survey of monetary theory, the banking system and the supply of money, monetary policy and current issues.

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† Does not count toward major requirement.

141. Economic Statistics. (4) I. Mr. Votey, Mr.Hambor

Prerequisites: Economics 5 and Mathematics 32 or 3A.

Probability, sampling distributions, estimators and estimation, hypothesis testing, analysis of variance and multiple regression.

142. Introduction to Econometrics. (4) II. Mr. Hambor

Prerequisites: Economics 141 and Mathematics 9, or consent of the instructor.

Multiple regression theory, problems in regression analysis, distributed lag models and simultaneous systems.

143. Mathematical Economics. (4) II.

Prerequisite: Economics 100B. Mr. Norman

Application of mathematics to selected topics in micro- and macro-economic theory.

150. Labor Economics. (4) III. Mr. Phillips

Prerequisite: Economics 100B.

The impact of unions on wages, income distribution, employment and prices. The role of government in collective bargaining.

180. International Trade. (4) II. Mr. Votey

Prerequisite: Economics 100B.

Historical and contemporary trade mechanisms; international trade theory; trade and welfare.

181. International Finance. (4) III. The Staff

Prerequisite: Economics 101B.

International money and capital markets and their impact on the domestic and world economies; international financial institutions and policies.

196H. Senior Honors Seminar. (4) II. The Staff

Prerequisite: senior standing with 3.0 or better average in the major.

Advanced topics in economic theory and policy. Weekly seminar discussions led by various members of the economics faculty.

199. Independent Studies in Economics. (1–5) I, II, III. The Staff

Admission by special arrangement.

199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200A–B–C. Micro-Economic Theory. (4–4–4) 200A: I. 200B: II. 200C: III.
Mr. Johnson, Mr. Phillips, Mr. Russell, Mr. Shapiro

200A. Methodology, theory of consumer behavior and demand, modern utility theory, revealed preference.

200B. Theory of the firm, linear programming and operations analysis, equilibrium under pure competition.

200C. Theory of market types, distribution.

201. General Equilibrium Theory and Welfare. (4) I. Mr. Russell

Survey of general equilibrium and welfare theories, from Walras and Pareto to the present.

202. Advanced Topics in Economic Theory. (1–4) III. The Staff

Reading and discussion of selected topics and recent literature in current economic theory. Specific material will vary from quarter to quarter. May be repeated for credit.

203A–B. History of Economic Thought. (4–4) 203A: I. 203B: II. Mr. Kennedy

203A. Analysis of the relationships between social conditions, economic theory, and economic policy from the medieval to the classical period.

203B. Analysis of the relationships between social conditions, economic theory, and economic policy from the neo-classical period to the present. Methodological problems including relationships to the sociology of knowledge and general intellectual history.

204A–B. Macro-Economic Theory. (4–4) 204A: II. 204B: III.
Mr. Crouch, Mr. Morgan, Mr. Russell

204A. Static macro-economic theory. Classical, Keynesian and post-Keynesian theory of national income and employment.

204B. Dynamic macro-economic theory. Capital theory, models of economic fluctuations, growth, stabilization and inflation.

205. Intermediate Micro-Economic Theory. (4) I. Mr. Johnson

The theory of consumer behavior and demand, theory of the firm, and the theory of market equilibrium. Primarily for students working for the M.A. degree.

207A–B. Comparative Economic Systems. (4–4) 207A: II. 207B: III. The Staff

207A. Criteria for performance of economic systems. Characteristics and problems of command economies.

207B. Problems of decentralization in the command economy; tools of control; market socialism and planning.

212. Economic History of Europe. (4) III.

Issues in European economic history. Mr. Mercer

Not to be offered 1971–72.

213. American Economic History. (4) III.

Issues in American economic history. Mr. Mercer

214A–B. Economic Development. (4–4) 214A: II. 214B: III.
Mr. Alexander, Mr. Votey

Comparative economic growth with emphasis on the development of underdeveloped economies.

216A–B. Industrial Organization and Public Policy. (4–4) 216A: I. 216B: III. Mr. Mead, Mr. McGuckin

Advanced topics in industrial organization and public policy.

220A–B. Urban and Regional Economics. (4–4) 220A: I. 220B: III.
Mr. Shapiro, Mr. Winnick

220A. The theory of city and regional economics. Economic theory when distance is taken as an important determinant of economic activity.

220B. Urban and Regional Policy. The application of theory to policy decisions.

230A–B. Public Finance. (4–4)
230A: II. 230B: III.
Mr. Morgan, Mr. Shapiro

230A. Public finance and taxation theory.

230B. Public debt management and fiscal policy.

235A–B. Money and Banking. (4–4)
235A: II. 235B: III.
Mr. Sullivan, Mr. Weintraub

235A. Monetary theory.

235B. Analysis of monetary institutions and monetary policies. Not to be offered 1971–72.

240. Mathematics for Economists I. (4) I.
Mr. Norman, Mr. Phillips, Mr. Sullivan

Selected topics in mathematics of particular importance to economists including the calculus, difference and differential equations.

241. Mathematics for Economists II. (4) I.
Mr. Norman, Mr. Sullivan

Selected topics in mathematics of particular importance to economists, especially linear algebra.

242. Statistics. (4) II.
Mr. Hambor, Mr. Norman, Mr. Phillips

Probability, frequency distributions and hypothesis testing, correlation and regression analysis.

243. Introduction to Econometrics. (4) III.
Mr. Hambor, Mr. Norman,
Mr. Phillips, Mr. Sullivan

Multiple regression models. Problems of single equation estimation. Introduction to econometric models.

244A–B. Mathematical Economics. (4–4)
244A: II. 244B: III.
Mr. Norman, Mr. Phillips, Mr. McCabe,
Mr. Russell

Prerequisite: Economics 241, 242, 243 or permission of the instructor.

Mathematical analysis of economic theory.

245A–B. Econometrics. (4–4) II, III.
Mr. Hambor, Mr. Norman, Mr. Sullivan

245A. Development of the theory of single equation and simultaneous equations estimation.

245B. Econometric studies.

250A–B. Labor Economics. (4–4) II, III.
Mr. Phillips

Theoretical and empirical analyses of the structure of wages, the labor market, distributive shares in national income, investment in human resources, national manpower and wage policy and other topics in industrial relations.

280A–B. International Trade. (4–4)
280A: I. 280B: III. Mr. Votey

280A. International trade theory.

280B. International finance.

594AA–594ZZ. Special Topics in Economics. (1–4) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor.

Special seminar on research subjects of current interest.

595AA–595ZZ. Group Studies in Economics. (4) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor.

Critical review of research in selected fields.

596AA–596ZZ. Directed Reading and Research. (2–4) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor.

Individual tutorial.

597. Individual Study for Master's Comprehensive Examination and Ph.D. Examinations. (1–12) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor.

No unit credit allowed toward advanced degree.

598AA–598ZZ. Master's Thesis Research and Preparation. (1–12) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor.

Only for research underlying the thesis, writing the thesis. No unit credit toward the degree will be given.

599AA–599ZZ. Dissertation Preparation. (1–12) I, II, III. The Staff

Prerequisite: Graduate standing and consent of instructor.

Only for preparation of the dissertation.

EDUCATION

Norman J. Boyan, Ed.D., *Professor of Education (Dean, Graduate School of Education).*
George I. Brown, Ed.D., *Professor of Education.*
John W. Cotton, Ph.D., *Professor of Education and Psychology.*
Chester W. Harris, Ph.D., *Professor of Education.*
Ralph K. Nair, Ed.D., *Professor of Education.*
Paul Nash, Ed.D., *Professor of Education.*
[1]Lester B. Sands, Ed.D., *Professor of Education.*
Kermit A. Seefeld, Ed.D., *Professor of Education.*
Stewart B. Shapiro, Ph.D., *Professor of Education.*
R. Murray Thomas, Ph.D., *Professor of Education.*
[2]John A. R. Wilson, Ed.D., *Professor of Education.*
Karl A. Fox, Ph.D., *Visiting Professor of Education.*
Glenn W. Durflinger, Ed.D., *Professor of Education, Emeritus.*
Elizabeth H. Irish, Ed.D., *Professor of Education, Emeritus.*
Charles L. Jacobs, Ph.D., *Professor of Education, Emeritus.*
Edith M. Leonard, M.A., *Professor of Education, Emeritus.*
Elsie A. Pond, M.A., *Professor of Education, Emeritus.*
Loretta M. Byers Sauer, Ed.D., *Professor of Education, Emeritus.*
Dorothy D. VanDeman, M.A., *Professor of Education, Emeritus.*
Geneviéve Delattre, Ph.D., *Associate Professor of Education.*
Ray E. Hosford, Ph.D., *Associate Professor of Education.*
Jules M. Zimmer, Ed.D., *Associate Professor of Education.*
James H. Block, Ph.D., *Assistant Professor of Education.*
Naftaly S. Glasman, Ph.D., *Assistant Professor of Education.*
Ruth N. Hartley, Ed.D., *Assistant Professor of Education.*
[3]William E. Lamon, Ph.D., *Assistant Professor of Education.*

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Roulette W. Smith, Ph.D., *Acting Assistant Professor of Education.*
Robert M. Arce, M.A., *Lecturer in Education, Supervisor of Teacher Education.*
Richard Jamgochian, Jr., Ph.D., *Lecturer in Education (Coordinator of Supervised Teaching, Elementary Schools).*
Harleen W. McAda, Ph.D., *Lecturer in Education.*
Stanley J. Nicholson, B.A., *Lecturer in Education.*
Glenn S. Pate, M.A., *Lecturer in Education (Coordinator of Supervised Teaching, Secondary Schools).*
Carolyn N. Cogan, B.A., *Supervisor of Teacher Education (Elementary).*
Vernon E. Cotter, M.A., *Supervisor of Teacher Education.*
Thomas M. Devaney, B.A., *Supervisor of Teacher Education.*
Oliver Johnson, B.A., *Supervisor of Teacher Education.*
Louise S. Kikuchi, M.A., *Supervisor of Teacher Education.*
Peter Van Duinwyk, M.A., *Supervisor of Teacher Education.*

ADVANCED DEGREES IN EDUCATION

MASTER OF ARTS IN EDUCATION

The purpose of this degree program is to add to the competence of experienced elementary-school or secondary-school teachers in academic disciplines as well as pedagogical or research skills.

Admission to the Program. In addition to satisfying the requirements of the Graduate Division, a candidate for admission must ordinarily hold a valid California teaching credential or its equivalent and a bachelor's degree or its equivalent from an institution of acceptable standing. Although a particular amount of teaching experience is not required for admission, a candidate must ordinarily have completed at least two years of successful teaching or have served in another appropriate position in professional education before being awarded this degree. To seek admission, a candidate applies to the Graduate Division, UCSB, for application forms.

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[1] Absent on Leave, Fall 1971.
[2] Absent on Leave, Fall 1971 and Winter 1972.
[3] Absent on Leave, Winter, Spring 1972.

Nature of the Program. Within the general program candidates must select a specific area of emphasis or concentration. Programs in Confluent Education, Educational Psychology, Elementary Reading—Language Arts Emphasis, and Mathematics Education are currently available. Applicants with interests in other areas of work are encouraged to consult the Education-Advising Office to determine program availability. Each candidate and his advisor and advisors construct a total program acceptable to both parties, with a distribution of course work in the following proportions: 40 percent in Education, 40 percent outside the Department of Education and 20 percent electives in either Education or outside the Department of Education. Two options for total course requirements are available: Plan I requires 30 quarter units of course work, of which at least 12 must be in graduate (200 level) courses, plus a thesis, with an oral examination over the thesis; Plan II requires 36 quarter units of course work, of which at least 18 must be in graduate (200 level) courses, plus a comprehensive examination covering the areas studied in the candidate's program. The form of the examination shall be determined by the candidate's advisor or advisors.

There is no blanket foreign language requirement for all candidates. Rather, when the candidate's program advisor or advisors deem it suitable for a candidate's field of study, they shall require an appropriate degree of competency in one foreign language. No course credit will be given for the candidate's demonstration of such competency.

At the discretion of the Department of Education, a candidate will be assigned either (A) one advisor in Education, or (B) one advisor in Education and a co-advisor in an appropriate department of another college or professional school on the campus.

Admission is subject to the availability of a program of study in the candidate's subject matter field or fields.

MASTER OF EDUCATION (Counseling Psychology)

Prerequisites: Background in Behavioral Sciences. Students not possessing a B.A. degree in anthropology, education, psychology or sociology will be expected to take appropriate courses or demonstrate knowledge competency in the areas of individual, group and institutional development and behavior. These prerequisites must be satisfied before beginning the counseling psychology program.

Admission Procedure. All applicants must first gain admission to graduate standing in the University. Concurrent with his submitting his application to the Graduate Division, the candidate should submit a report of his performance on the Graduate Record Examination Aptitude Test or the Miller Analogies Test.

Only when the candidate's file is complete is it sent to the Graduate School of Education by the Graduate Division. It is the applicant's responsibility to make sure that all materials are received and included in his file. The Graduate School of Education will contact the applicant and set up a date and time for interviews with the three-member interview committee.

The interviews are usually held during the month of March. The purpose of the interview is to enable the Graduate School of Education faculty in Counseling Psychology to secure some direct information concerning the applicant's professional interests, his apparent motives for entering this degree program, and his background of experience. If the applicant does not live in Southern California and finds it impossible to arrange for these interviews, he may by correspondence furnish to the interview board in writing:

(1) a statement of professional goals,
(2) reasons for choosing counseling psychology rather than some other field for advanced professional education, and
(3) an autobiography.

Master of Education Degree (Counseling Psychology) and Pupil Personnel Services Credential. The Counseling Psychology Program is designed to provide the student with skills of observing, interpreting, modifying and evaluating behavior within individual, group, and institutional settings. While the basic Master's Degree program has 48 quarter-units required (37 specified; 11 units of electives), a candidate's individual background and goals ultimately determine his program.

In addition to the Master of Education Degree, students may pursue courses leading to the Standard Designated Services Credential with a specialization in Pupil Personnel Services as (1) Pupil Counselor, (2) Psychometrist, and (3) Psychologist.

Pupil Counselor. For those students having three years of teaching experience and wishing certification as a Pupil Counselor, the 48 quarter-unit Master of Education (Counseling Psychology) program meets the necessary requirements. Students wishing Pupil Counselor Certification and who do not have three years of teaching experience are required to take 24 additional credit hours of courses designed to provide the necessary background in education. Courses to meet this requirement are determined with the consent of the student's advisor.

Psychometrist. Completion of the Pupil Counselor program and an additional 12 quarter-units, including supervised field work in psychological testing in education is required for certification.

Psychologist. Completion of the Pupil Counselor *and* the Psychometrist programs and an additional 36 quarter-units of study lead to the certification as a school psychologist.

Candidates are strongly encouraged to elect full-time attendance since it permits a better-integrated set of learning experiences than does a part-time program. However, for applicants who cannot attend full time, provisions can be made for part-time attendance. No program of less than one-half time is permitted, unless approved by the director of the program and with the consent of instructor.

DOCTOR OF PHILOSOPHY IN EDUCATION

A program leading to the degree of Doctor of Philosophy in Education opened in the fall of 1968.

Fields of Study. The areas in which candidates can be accepted at present include the following: educational psychology, counseling psychology, international education (with concentration on Indonesia and Malaysia), "confluent" education (integration of the affective and cognitive domains of inquiry and learning), and educational administration (with emphasis on program planning and evaluation). It is anticipated that additional concentrations will be authorized as faculty expansion permits.

In a few cases a potential candidate may wish to direct his studies toward a specialization which is not encompassed in one of the fields mentioned above. Instead, his concerns may require study in several disciplines represented among the departments of the University. It may be possible, in such instances, for the School to prepare a special program that would accommodate the individual's particular constellation of interests and at the same time meet the Ph.D. requirement of strong scholarship in an area of emphasis. Potential applicants who believe they fit this category should submit to the School a clear description of the goals in order to determine whether the University might be staffed to formulate a suitable individualized program.

Admission. Students may be admitted for the Fall, Winter, and Spring Quarters for all programs. Applications for Fall admission will generally be considered up to and including March 15. Exceptional cases will be considered up to August 1.

Students may enter the doctoral program for certain specialties after earning a bachelor's degree and for other specialties after earning a master's degree or the equivalent.

To gain admission, an applicant must fulfill the general requirements for admission to graduate status and must submit a report of his performance on at least one of three tests (Miller Analogies, Concept Mastery, or Graduate Record Examination Aptitude Test). In addition, he is required to present a description of how his proposed doctoral study relates to his own background and to his plans for the future.

Only applicants whose records suggest clear potential for succeeding in doctoral studies will be accepted into the program.

Characteristics of the Program. The purpose of the program is to prepare highly capable scholar-researchers who will perform as scholars and skilled professionals involved in improving the conduct of education.

No specific total number of course units which a student must accumulate prior to his receiving the doctorate will be prescribed. Rather, the decision about whether the candidate deserves the degree will be based upon appraisals of his competence as evidenced through examinations, the quality of his course work, his performance in seminars and in research projects, and the quality of his research dissertation.

Residence Requirement. The minimum residence requirement for the Ph.D. degree is two years. Students in doctoral programs will spend at least six quarters in residence pursuing a program of full-time study and research on the Santa Barbara campus; three consecutive quarters of this residence must be completed in regular session before advancement to candidacy. Exceptions to this rule may be granted only by the Graduate Council.

If a student needs skill in one or more foreign languages or in statistics and computer technology in order to pursue his special field of study most effectively, then such requirements will become part of his study program. However, there is no general foreign language or statistics requirement which every candidate must fulfill.

Detailed information regarding these advanced degrees in education is given in the *Graduate School of Education Announcement* and in the *Graduate Division Announcement.*

CREDENTIAL PROGRAMS

Credentials for service in public schools in California are issued by the Commission of Credentials of the State Board of Education upon recommendation of institutions authorized for teacher training. The Department of Education provides the professional education courses and directs the student teaching program for all credentials. There are certain acceptable standards which must be met by candidates for teaching credentials, including such qualifications as intelligence, scholarship, aptitude for teaching, physical fitness, and personality. All candidates must be in good standing in the Graduate Division on completion of any credential program.

Student Teaching: All students entering Supervised Teaching must have completed a major and minor that have been approved by the appropriate departments. *A minor is optional with an academic major.* Individual departments will be the judge of a person's competence in that subject-matter field.

Foreign language majors and minors must present evidence of their proficiency in the spoken foreign language as a prerequisite to student teaching in that subject field.

Health clearance by the Student Health Service on this campus is required prior to student teaching.

The Graduate School of Education offers graduate programs leading to recommendation for the following credentials:

Standard Teaching Credential with a Specialization in Elementary School Teaching;
Standard Teaching Credential with a Specialization in Secondary School Teaching;
Standard Supervision Credential;
Standard Designated Services Credential with a Specialization in Pupil Personnel Service; and Restricted Speech and Hearing Credential.

For detailed information concerning credential programs, see the *Announcement of the Graduate School of Education, Santa Barbara.*

* EDUCATION

Upper Division Courses

114. Introductory Educational Statistics. (3) I, II. Mr. Cotton, Mr. Harris

Prerequisite: College algebra or permission of instructor.

Measures of central tendency and variability. Sets, sample spaces, and random variables. Introduction to estimation theory and hypothesis testing. Normal, t, and chi-square distributions. Bivariate normal distribution.

119. Measurement and Evaluation in Education. (4) II. Mr. Block

Prerequisite: Consent of instructor.

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* If the quarter when a course will be given is not noted, students should refer to the schedule of classes. Designation of the quarter when a course will be given is subject to change.

Purposes and techniques of measurement and evaluation, statistical measures, test construction and scoring, using and interpreting results of appraisal. The focus is upon group analysis of students' counseling tapes. (Students must secure field placement in their specialty.)

164. Educational and Vocational Guidance.
(3) II, III. Mr. Nair

Prerequisite: Consent of instructor.

Examination of vocational development theory, the sociology of work, and school programs focused upon individual decision-making. Participation in relevant community surveys.

Teaching Procedures, Curriculum and Instructional Materials (190 and 390 Series).

All 190 and 390 offerings are courses in procedures, curriculum and instructional materials in specialized fields.

Standard Secondary Credential candidates are required to take one course in their major and one course in their minor, if they have specified a minor at time of admission to the Graduate Division.

Standard Elementary Credential candidates must enroll in 391 courses as described in that program.

C 190. Curriculum and Instructional Procedures and Materials Used in Teaching in the Junior College.
(3) I. Mr. Seefeld

A study of the history, goals, organization, and curriculum of the two-year college, with emphasis on the junior college teacher and the problems and procedures related to classroom instruction.

199. Independent Studies. (1–5) I, II, III.
The Staff

Prerequisite: Open only to advanced students approved by the chairman of the department.

Study of special problems in various fields of education. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200. Research Methods in Education.
(3) III. Mr. Cotton

Prerequisites: Education 114, graduate standing and consent of instructor.

Basic principles of scientific method exemplified by experimental, survey, longitudinal and correlational studies; design and reporting of original investigations; bibliographic experience.

201. Historical Foundations of Education.
(3) III. Mr. Sands

Educational thought and practice as a phase of social progress. Ancient and medieval conceptions and their effect on modern education.

203. Social Foundations of Education.
(4) III. Mr. Seefeld

This survey provides both an historical and comparative perspective on contemporary social and philosophical issues as they relate to educational decision making.

206. Philosophical Foundations of Education.
(3) III. Mr. Nash, Mr. Sands

Classical and modern philosophies are analyzed for their influence on educational practices. The writings of philosophers and educational innovators are studied in relation to possible school procedures.

207. Human Variability and Learning. (3) III.
Mr. Thomas

Prerequisite: California Teaching Credential.

Analysis of ways different societies regard human variability. Analysis of research on meeting individual differences in classrooms, emphasizing intellectual, psycho-physical, social-class, and emotional skills and handicaps. Creation of new techniques and materials to meet variability among students.

209. Learning Abilities of Young Children.
(4) III. Mr. Wilson

Prerequisite: Consent of instructor.

Based on readings in Piaget, Kendler and Kendler, Guilford, Wilson and Robeck, and the analysis of assumptions implicit in children's toys such as creative playthings. Seminar and research oriented field work.

210. Theories of Learning. (3) III. Mr. Wilson

Prerequisites: Graduate standing, Education 212 or equivalent and consent of instructor.

Analysis and critical study of theories and models of human learning, review and evaluation of current literature on the learning process, and examination of the concept of the teaching-learning process.

211A. Psychological Foundations of Education in the Elementary School.
(3) I. Mr. Thomas

Prerequisites: Graduate standing and consent of the instructor.

Interdisciplinary approaches to theory and research on student behavior.

212. Psychological Foundations of Education.
(5) II.
Mr. Block, Mr. Cotton, Mr. Nicholson, Mr. Thomas

Prerequisite: Psychology 1 or 101.

A study of the nature and dynamics of human behavior. Emphasis is placed upon the application of psychological principles to the educative process, personality development and assessment.

213. Diagnosing Learning Difficulties.
(4) III. Mr. Thomas

Prerequisite: Admission to Master of Arts in Education or Master of Education (Counseling Psychology) program.

Factors which may cause learning difficulties are analyzed, methods of evaluating these factors in the classroom and clinic are described, and solutions for the difficulties are proposed.

214A. Advanced Educational Statistics.
(3) II. Mr. Harris

Prerequisite: Ed 114.

This course will deal with the following topics: review of interval estimation and hypothesis testing;

one-way fixed analysis of variance; two-way fixed effects analysis of variance; principles of fixed-effect design; bivariate distributions, simple correlation, and simple regression; and binomial distributions.

214B. Advanced Educational Statistics. (3) III. Mr. Harris

Prerequisite: Ed 214A.

This course will deal with the following topics: random and mixed anova designs, repeated measures anova designs, nonparametric procedures, analysis of covariance (in relation to randomized block designs), and multiple regression and correlation.

215. Curriculum Theory and Dynamics. (4). The Staff

Prerequisite: Admission to Master of Arts in Education program.

Curriculum theory and research are applied to the analysis of classroom teaching. Particular emphasis is placed on recent studies of the structure of subject matter, advances in educational media, and research and clinical reports on interpersonal functioning in the classroom.

217. Gestalt Learning Theory. (5) I, II. Mr. Brown

Prerequisites: Graduate standing and consent of instructor.

The theory and principles of Gestalt Therapy as applied to an educational context. Experiential participation in a training experience.

220. Measurement and Evaluation. (3) III. Mr. Block

Prerequisites: Education 119, graduate standing and consent of instructor.

Consideration of advanced principles of educational measurements including topics of reliability, validity, scaling and norms; and of their application to test construction, interpretation, and reporting.

221. Research Seminar in Mathematics Education. (3) III. Mr. Lamon

Prerequisites: Mathematical background and consent of instructor.

Critical appraisal of past and current research studies in mathematics education as viewed from a psychological, mathematical, and pedagogical point of view.

222. Mathematics Education and the Psychology of Learning. (3–5) II. Mr. Lamon

Prerequisites: Mathematical background and consent of instructor.

The nature of mathematics and its place in the psychology of learning.

225A. Sociological Foundations of Education in the Elementary School. (3) II. Mr. Jamgochian

Prerequisites: Graduate standing and consent of instructor.

Interdisciplinary approaches to theory and research on the school as a social institution.

234. Linguistics for Teachers of Reading and English. (3) I. Miss Hartley

Prerequisites: Graduate standing and consent of instructor.

Linguistic theory and its applications to the teaching of reading and English.

240. The Administrator and Educational Purpose. (3) I. Mr. Glasman

Prerequisite: Consent of instructor.

Educational purpose and programs are explored from the viewpoint of philosophical frameworks. Special emphasis is placed on the philosophical bases of decision making.

241. Schools—Public Institutions. (3) II. Mr. Glasman

Prerequisite: Consent of instructor.

Educational governance and politics are explored as well as legal and extra legal controls exerted upon schools as public institutions.

242. Schools—Complex Organizations. (3) III. Mr. Boyan, Mr. Glasman

Prerequisite: Consent of instructor.

Organizational theories are explored and their implication to the structure of schools is analyzed. Consideration is given to organizational variables such as climate, authority, leadership, change, and others.

243. The Principalship. (3) I. Mr. Jamgochian

Prerequisites: Graduate standing and consent of instructor.

The role of the school principal is examined in theoretical and practical contexts. Consideration is given to other administrative positions as well.

244. Organizations and Interpersonal Relationships. (3) II. Mr. Shapiro

Prerequisite: Consent of instructor.

A study of leader behavior in a school context. Social interaction and authority relationships are explored.

246. Evaluation of School Programs. (3) I. Mr. Glasman, Mr. Jamgochian

Prerequisite: Consent of instructor.

Consideration is given to evaluation practices, uses of research methodology in evaluation, and educational planning. Evaluation methods are explored such as cost effectiveness, PPBS, and others.

247. Seminar in Problems of Administration. (3) I. Mr. Boyan

Prerequisite: Consent of instructor.

Current specific problems relating to the administration and supervision of school programs are selected for analysis through the application of theory and research in organizational behavior.

249A–B–C. Practicum—Educational Administration. (3–3–3) I, II, III.

Prerequisite: Consent of instructor. The Staff

Field experience, discussions with school administrators and simulated activities will be utilized to maximize understanding of the "work world" of school administrators.

258A. Seminar in Curriculum: Reading. (3) I. Miss Hartley

Prerequisites: Basic procedures course in the area of specialization; a minimum of one year of teaching experience; consent of the instructor.

Recent developments, review and evaluation of current research in curriculum.

258B. Seminar in Curriculum: Mathematics. (3) III. Mr. Lamon

Prerequisites: Basic procedures course in the area of specialization; a minimum of one year teaching experience; consent of the instructor.

Recent developments, review and evaluation of current research in curriculum.

260. Seminar: The Creative Process. (3) I. Mr. Brown

Prerequisites: Graduate standing and consent of the instructor.

A discussion of the research on and theories of creativity. Emphasis will be on psychological process rather than on creative productivity. Major foci will be on descriptive studies of the creative person and contributions to the methodology of creative growth.

261A. Encounter Group Leadership. (4) I. Mr. Shapiro

Prerequisite: Consent of instructor.

An introduction to training leaders in theory and practice of facilitating small face-to-face groups. Course will cover goals and purposes of encounter groups, T-Groups, sensitivity training, etc. with emphasis on skill in group process.

261B. The Dynamics of Planned Change. (4) II. Mr. Shapiro

Prerequisite: Consent of instructor.

Examination of role of change agents to various client systems with exploration of theories of social change, providing theoretical framework from which to understand systemic problems of individuals and groups. Development of skills of consultants to various social systems.

261C. Human Relations in Education. (4) III. Mr. Shapiro

Prerequisite: Consent of instructor.

Application of technology of change agentry, group dynamics and encounter groups or T-Groups to educational systems. Survey of educational institutions and study of human relations procedures available for improvement. Development of "design" capacities in planning human relations programs.

262A. Systematic Training in Counseling Strategies: Observing and Recording Behavior. (1) I, II, III, SS. Mr. Hosford, Mr. Zimmer

Prerequisite: Admission to the Counseling Psychology Program.

Laboratory course designed to help individuals learn to observe and record data pertaining to individual and group as well as institutional patterns which affect behavior of the individual. Student performance must meet specified levels of competency to pass the course.

262B. Systematic Training in Counseling Strategies: Interpreting Behavior. (1) I, II, III, SS. Mr. Hosford, Mr. Zimmer

Prerequisite: Admission to the Counseling Psychology Program.

This laboratory course is designed to help students learn to interpret data gained through observations which allow them to put causal relationships into perspective. Student performance must meet specified levels of competency to pass the course.

262C. Systematic Training in Counseling Strategies: Modifying Behavior. (1) I, II, III, SS. Mr. Hosford, Mr. Zimmer

Prerequisite: Admission to the Counseling Psychology Program.

This laboratory course is designed to help students develop and employ strategies that allow them to change some aspect of the individual, group or institution in a manner that directly results in modification of the individual.

262D. Systematic Training in Counseling Strategies: Evaluating Behavior Change. (1) I, II, III, SS. Mr. Hosford, Mr. Zimmer

Prerequisite: Admission to the Counseling Psychology Program.

This laboratory course is designed to help students develop and test feedback and research strategies to determine the effectiveness of various modification strategies employed in the counseling process. Student performance must meet specified levels of competency to pass the course.

263. Counseling Techniques: Behavior Modification. (3) II, SS. Mr. Hosford

Prerequisites: Consent of instructor or admission to the Counseling Psychology Program.

Course is designed to help counselors and teachers gain understanding and practice in using behavioral counseling techniques. Instruction covers historical development, presest status of behavior modification, and specific techniques (operant procedures, desensitization, behavior rehearsal, social modeling, assertive training) for modifying behavior.

264. Counseling Techniques: Eclectic. (3) III, SS. Mr. Zimmer

Prerequisite: Consent of instructor or admission to the Counseling Psychology Program.

Students are given an opportunity to become acquainted with various counseling techniques and their potential effects on counselees. Through systematic exposure to techniques, students will develop an integrated style of counseling that relates to counselees' goals and history of maturation.

265. Fieldwork in Counseling and Concurrent Seminar. (3) I, II, III, SS. Mr. Hosford, Mr. Zimmer

Prerequisites: Consent of instructor and enrollment in the Counseling Psychology Program.

Intensive supervised fieldwork in counseling. A minimum of one full day in an approved practicum setting plus individual and group supervision at the University are required.

266A–B. Psychological Testing in Education. (3–3) I, II. The Staff

Prerequisite: Consent of instructor and enrollment in Master of Education (Counseling Psychology) Program.

An intensive study of human development and personality dynamics in terms of their assessment through clinical instruments and techniques. Students will learn to choose, administer, and utilize data from techniques commonly used by school psychologists and college counseling centers. (Yearlong, weekly classes and practicum, plus supervised application in the fieldwork setting.)

267. Group Dynamics and Their Applications in Education. (3) I. Mr. Shapiro

Prerequisite: Consent of instructor and enrollment in Master of Education (Counseling Psychology) Program.

Participation in a training group followed by an examination of school applications for group procedures.

268. Advanced Fieldwork in Counseling. (3) I, II, III, SS. The Staff

Prerequisites: Consent of instructor and 9 units of Ed. 265 Fieldwork in Counseling and Concurrent Seminar.

Advanced supervised fieldwork in counseling. A minimum of one full day in an approved practicum setting plus individual and group supervision at the University are required.

275. Counseling Theories: Seminar. (3) I. Mr. Zimmer

Prerequisite: Consent of instructor and enrollment in Master of Education (Counseling Psychology) Program.

A critical examination of modern theories of counseling, plus intensive supervision of counseling practice.

276. Research in Counseling Practices: Seminar. (2) III. Mr. Zimmer

Prerequisite: Consent of instructor and enrollment in Master of Education (Counseling Psychology) Program.

Examination of problems in various counseling applications, recent theoretical developments. Continuation of group and individual supervision.

277. Specialized Counseling: Seminar. (2) I, II, III, SS. The Staff

Prerequisite: Consent of instructor and/or enrollment in Ph.D. (Counseling Psychology) Program.

An examination of the diverse contexts in which counseling practices are relevant, plus their effects upon theory and techniques. Continuation of supervision.

278. Educational Applications of Machine Data Processing. (3) I. Mr. Smith

Prerequisites: Consent of instructor and enrollment in Master of Education (Counseling Psychology) Program.

Familiarization with machine data processing and terminology. Practice exercises with punched card and tabulating equipment. Discussion of school applications.

281. Sociological Foundations of Education. (3) III. Mr. Sands

The scientific analysis of the social processes and social patterns involved in the educational system with emphasis on the school as a social system.

282. Instructional Strategies in Confluent Education. (4) II. Mr. Brown

Prerequisites: Ed. 217, 260, and 261A.

The development of pedagogical structures based on the behavioral sciences and laboratory experiences in prerequisite course work directed toward individual and group learning experience in the classroom. Emphasis will be on the integration of the affective and cognitive domains.

283. Curriculum Design in Confluent Education. (4) II. Mr. Brown, Mr. Jamgochian

Prerequisites: Ed. 217, 260, 261A, and 282.

Systematic study of curriculum design, the structure of disciplines, potential affective components and their relationship to intellectual functioning within an idiosyncratic as well as nomothetic context. Directed toward the application of confluent principles of education to classroom and departmental curricula.

284. Philosophical Dimensions of Confluent Instruction. (4) II. Mr. Nash

Prerequisites: Enrollment in M.A. in Education (Confluent Program) and consent of instructor.

Consideration of values, ethics, definitions of reality to help student clarify and refine his philosophical framework for teaching, as well as understand underlying philosophical principles for education in general. Attention given to special problems of confluent curriculum and teaching methodology.

295. A*–B–C–D–E*–F. Seminar in Educational Psychology. (4–4–4–4–4–4) I, II, III. Mr. Block, Mr. Cotton, Mr. Harris, Mr. Thomas

Prerequisite: Admission to Ph.D. Program.

A. Affective Processes, B. Developmental Processes, C. Cognitive Learning, D. Measurement and Mathematical Models of Education, E. Structure of Intellect, F. Psychological Base for Modern Instructional Procedures.

Sections A–F are given as separate units and may be taken more than once by a student with the consent of the instructor.

297A–B–C. Ways of Knowing. (2–2–2) I, II, III. Mr. Nash

Prerequisite: Admission to doctoral program in Education.

A year-long seminar focusing on the varied approaches to inquiry utilized by disciplines in the natural sciences, social sciences, fine arts, and humanities.

Teaching Procedures, Curriculum and Instructional Material (390 and 391 Series). All 390 and 391 offerings are courses in procedures, curriculum and instructional materials in specialized fields.

Standard Secondary Credential candidates are required to take one course in their major and one course in their minor, if they have specified a minor.

Standard Elementary Credential Candidates must enroll in 391 courses as described in that program.

SF 390. Curriculum and Instructional Procedures and Materials Used in the Teaching of French. (3) I. Mrs. Delattre

Prerequisite: Major or minor in French.

Required of candidates for the secondary credential with a major or minor in French.

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* A and E not offered 1971–72.

SM 390. Curriculum and Instructional Procedures and Materials Used in the Teaching of Math in the Secondary School. (3) I. Mr. Lamon

Prerequisite: Major or minor in Mathematics.

Designed for teachers in training.

SN 390. Curriculum and Instructional Procedures and Materials Used in the Teaching of Spanish. (3) I. The Staff

Prerequisite: Major or minor in Spanish.

Methodology of foreign language teaching with particular application to Spanish.

SS 390. Curriculum and Instructional Procedures and Materials Used in the Teaching of Social Studies. (3) I. The Staff

Prerequisites: Graduate standing. Major in anthropology, economics, history, political science, sociology, or combination social sciences.

This course is required of candidates for the secondary credential with a major or minor in one of the named social sciences.

SST 390. Procedures for Teaching Science in the Secondary School. (4–6) I. Mrs. McAda

Prerequisite: Major or minor in biology, chemistry, physics, or geology.

Lecture-discussion sessions considering secondary-school science curriculum materials and the objectives and teaching strategies appropriate to these materials.

EL 391A. Teaching Procedures, Curriculum, and Instructional Materials Used in the Teaching of Mathematics in the Elementary Schools. (1–2) I, II. Mr. Lamon

Prerequisites: Graduate standing and enrollment in the graduate elementary credential program.

The application of research and theory to classroom practice in the teaching of mathematics.

EL 391B. Teaching Procedures, Curriculum, and Instructional Materials Used in the Teaching of Science in the Elementary Schools. (1–2) I, II. Mrs. McAda

Prerequisites: Graduate standing and enrollment in the graduate elementary credential program.

The application of research and theory to classroom practice in the teaching of science.

EL 391C. Teaching Procedures, Curriculum, and Instructional Materials Used in the Teaching of Social Studies in the Elementary Schools. (1–2) II, III. Mr. Jamgochian

Prerequisites: Graduate standing and enrollment in the graduate elementary credential program.

The application of research and theory to classroom practice in the teaching of social studies.

EL 391D. Teaching Procedures, Curriculum, and Instructional Materials Used in the Teaching of Reading in the Elementary Schools. (1–2) II, III. Miss Hartley

Prerequisites: Grraduate standing and enrollment in the graduate elementary credential program.

The application of research and theory to classroom practice in the teaching of reading.

EL 391E. Teaching Procedures, Curriculum, and Instructional Materials Used in the Teaching of Language Arts in the Elementary Schools. (1–2) I, II. The Staff

Prerequisites: Graduate standing and enrollment in the graduate elementary credential program.

The application of research and theory to classroom practice in the teaching of language arts.

Supervised Teaching (392 Series)

Prerequisite: Education 390 must be completed on this campus. Admission to graduate standing in a credential program and completion of the major and minor as specified by those subject field departments.

Note: This is an extra-session course which is scheduled to coincide with the calendar of the public schools. Enrollment is limited to available facilities. Apply well in advance as indicated in the Schedule of Classes.

EL 392A–B–C. Supervised Teaching: Elementary Schools. (5–5–5) I, II, III. The Staff

Prerequisites: Graduate standing; Education EL 391A–B–C–D–E taken concurrently.

Supervised teaching.

SF 392A–B–C. Student Teaching: French. (4–4–4) I, II, III. Mrs. Delattre

Prerequisites: Admission to secondary credential program. Oral and written proficiency in French.

Supervised field experience in the teaching of French.

SM 392A–B–C. Student Teaching: Mathematics (4–4–4) I, II, III. The Staff

Prerequisites: Admission to secondary credential program and major or minor mathematics.

Supervised field experience in the teaching of mathematics.

SN 392A–B–C. Student Teaching: Spanish. (4–4–4) I, II, III. The Staff

Prerequisite: Admission to secondary credential program.

Supervised field experience in the teaching of Spanish.

SS 392A–B–C. Student Teaching: Social Studies. (4–4–4) I, II, III. The Staff

Prerequisite: Admission to secondary credential program.

Supervised field experience in the teaching of social studies.

SST 392A–B–C. Supervised Teaching: Science Education. (4–4–4) I, II, III. Mrs. McAda

Prerequisite: Admission to secondary credential program.

Supervised field experience in the teaching of science.

Problems (393 Series)

Education 393 to be required at the option of the instructor who teaches the concurrent 392 course.

EL 393A–B–C. Seminar in Student Teaching: Elementary. (1–1–1) I, II, III. The Staff

Prerequisites: Graduate standing. Concurrent enrollment in Education EL 392A–B–C.

Problems of teaching identified during field experience in student teaching.

SF 393. Problems Seminar in the Teaching of French. (1) I, II, III. Mrs. Delattre

Prerequisite: Taken concurrently with supervised teaching in French.

Discussion of problems in the teaching of French.

SM 393. Problems Seminar in the Teaching of Mathematics. (1) I, II, III. The Staff

Prerequisite: Taken concurrently with supervised teaching in mathematics.

Discussion of problems in the teaching of mathematics.

SN 393. Problems Seminar in the Teaching of Spanish. (1) I, II, III. The Staff

Prerequisite: Taken concurrently with supervised teaching in Spanish.

Discussion of problems in the teaching of Spanish.

SS 393. Problems Seminar in the Teaching of Social Studies. (1) I, II, III. The Staff

Prerequisite: Taken concurrently with supervised teaching in social studies.

Discussion of problems in the teaching of social studies.

SST 393. Problems Seminar in the Teaching of Science. (1) I, II, III. Mrs. McAda

Prerequisite: Taken concurrently with supervised teaching in science.

Discussion of problems in the teaching of science.

EDUCATION ABROAD PROGRAM

William H. Allaway, *Director.*
Robert H. Billigmeier, *Associate Director.*
Gloria Blakemore, *Assistant Director.*
Jose R. Fulco, *Associate Director.*
James D. Kline, *Associate Director.*
Ursula Mahlendorf, *Associate Director.*
Hallam C. Shorrock, Jr., *Associate Director.*

Stanley D. Krebs, *Campus Coordinator.*
Brian W. Selander, *Academic Counselor.*

STUDY CENTER STAFF, 1971–72

———, *Director, Beirut Study Center.*
Everett Carter, Ph.D., *Director, Bordeaux Study Center.*
Reuben J. Snow, Ph.D., *Associate Director, Bordeaux Study Center.*
Frederic C. Tubach, Ph.D., *Director, Goettingen Study Center.*
Erich G. Thomsen, Ph.D., *Associate Director, Goettingen Study Center.*
Benjamin E. Wallacker, Ph.D., *Director, Hong Kong Study Center.*
Cary C. Weng, B.A., *Staff Officer, Hong Kong Study Center.*
Martin Wolins, D.S.W., *Director, Jerusalem Study Center.*
Washek F. Pfeffer, Ph.D., *Liaison Officer, Legon-Accra Study Center.*
Carlos G. Barron, Ph.D., *Director, Madrid Study Center.*
Joshua Golden, M.D., *Associate Director, Madrid Study Center.*
Richard Barrutia, Ph.D., *Director, Mexico City Study Center.*
Nathan H. Shapira, *Dottore in Architettura, Liaison Officer, Nairobi Study Center.*
Richard Hostetter, Ph.D., *Director Padua Study Center.*
Howard Appel, M.A., *Director, Paris Study Center.*
Allan R. Pred, Ph.D., *Director, Scandinavian Study Center (Bergen, Lund).*
Asbjørn Aarseth, M.A., *Associate Director, Scandinavian Study Center (Bergen).*
Henry I. Nakada, Ph.D., *Director, Mitaka-Tokyo Study Center.*
Alfred Gollin, Ph.D., *Director, United Kingdom and Ireland Study Center.*
Siegfried B. Puknat, Ph.D., *Associate Director, United Kingdom and Ireland Study Center.*

Administered for the University of California by the Santa Barbara campus, the Education Abroad Program is now entering its eleventh year of operation. Study Centers have been established in France, Germany, Ghana, Hong Kong, Israel, Italy, Japan, Kenya, Lebanon, Norway, Spain, Sweden, and the United Kingdom and Ireland. Special programs for students preparing for a career in teaching Spanish and French in secondary schools have been established in Mexico City and in Paris.

Purpose

The Education Abroad Program was originally designed to give mature, highly motivated, and academically superior upper-division students from all UC campuses rich experience in a new cultural milieu as a part of their normal undergraduate program. Somewhat later, a graduate dimension was added which has now made a significant contribution in assisting a small number of selected students in their programs toward advanced degrees.

The Program stimulates the intellectual development of the participants, broadening the general education of all and giving a new depth to the particular academic interests of some. Most gain fluency in a language other than their own, and all grow in their ability to engage in independent study. Perhaps most valuable of all are increased self-understanding, clarified life purposes, and a broadening and deepening of personal values.

One of the most distinctive features of the Program is the emphasis placed on the full integration of the UC students into the life of the host university. UC students abroad live as do the students of the host university for the most part, attend the same classes, take courses from the same professors, and take part in local social and cultural activities. As an aid in facilitating UC student adjustment to unfamiliar educational practices, tutorials are included within the curriculum of most of the Study Centers, supplementing the regular academic offerings of the host university.

The Academic Program

The academic program of each student includes: (1) a preparatory course in the language of the country (except for the Hong Kong, Lebanon, Africa, and United Kingdom and Ireland programs); (2) a full academic year of credit courses (except for the graduate programs in Mexico City and Paris); and (3) a wide-ranging opportunity to audit courses, either in the student's special field of interest or in new fields he wishes to explore.

In order to assist students to adjust to different academic requirements of the host university and to provide a link to American university practices, many courses taken by UC students are supplemented by tutorials. The tutorials are conducted by graduate students or junior staff of the host university, who help UC students to resolve language difficulties, provide cultural background presupposed by the lectures, give opportunities for questioning and discussion, and supplement the lectures by reading assignments, papers and evaluation of progress.

Each student is concurrently enrolled on his home campus of the University of California and at the host university. Full academic credit is received for courses satisfactorily completed. The selection of courses is such that, by advance planning and wise choice, most students can make normal progress toward graduation. Some students fulfill some general education requirements.

Academic Planning and Advising

A participant who wishes to make normal progress toward graduation should counsel *in advance* with his departmental adviser and the dean of his school or college in order to ascertain how participation will affect his academic program. In the following pages, entries are provided for each of the Study Centers, listing the major departments of study. Individual courses presently approved for UC credit are not listed here but may be consulted in the *EAP Advisers' Manual* in the EAP Campus Coordinator's office (1131 South Hall) and in the main library. Since offerings at the host universities may change rapidly, the listings in the Manual represent the courses UC students have taken in the past. Many of the same or similar courses will be available in future years, but the student should plan a program that is sufficiently flexible to allow him to take alternate courses. Each year new courses are added to the Center's approved offerings as needed by UC students attending and as available at the host university. Although courses approved by the University of California carry full credit, each department retains the right to determine the extent to which it will accept units so earned in the fulfillment of the requirements for its own majors.

Normally, students apply for admission to the Program during the fall quarter of their sophomore year. However, a limited number of students are accepted each year to participate as seniors and as graduate students. Such a student should make inquiry of the dean of his college as well as with his academic advisers concerning residence requirements in order to learn in what way participation will affect graduation or graduate status.

In order to facilitate the academic work of the students, University of California professors serve as Directors and Associate Directors of the Study Centers. They work with their counterparts in the host university in developing the academic program and advise students on any problem pertaining to their work. In addition, the Directors are responsible for all aspects of student welfare and conduct.

Selection

Participants are chosen on each campus by a faculty committee appointed by the Chancellor. Basic requirements are: upper-division standing in the University at time of participation, two years of university-level work in the language of the country with a B average (or the equivalent thereof) and an over-all B average. In addition to academic criteria for selection, the faculty committee attaches much importance to indications of the student's seriousness of purpose, maturity, and the capacity to adapt to the experience of study abroad. As part of the screening process, students are required to consult with their adviser and to obtain clearance from the University's Student Health Service.

With the exception of students from California junior colleges, transfer students are eligible if they have completed at least one quarter in the University of California at the time of selection (not applicable for graduate students for Mexico City and Paris). California junior college students may apply for the Education Abroad Program prior to their active enrollment in a campus of the University of California, but only under certain conditions. Such students, considered during their sophomore year, must compete with UC students on the campus on which application for admission is being processed. If selected for EAP, a junior college transfer student must have been clearly admitted to UCSB prior to departure for the Program.

Student Conduct and Parental Approval

It is anticipated that the students selected for the Education Abroad Program will be of high caliber, committed to profiting from both the intellectual and social aspects of the experience. Since they will be guests in another country and another university, their conduct will reflect on both the University of California and the United States. Students participating in the Education Abroad Program are responsible to the Director of the Center, to the Director of the EAP, to the faculty of the University of California, and to the faculty members of the host university who are related to the Program. The Director of the EAP reserves the right to terminate the participation in the Program of any student whose conduct (in either academic or non-academic matters), after careful consideration and full review, is judged to be contrary to the standards and regulations of the host university.

Participation in the Program by a minor student must be approved by his parents or guardian. In approving such participation, parents and guardians should be aware that a greater degree of personal freedom is inherent in the foreign university and that the University of California cannot take responsibility for supervising closely the activities of individual students. The Directors of the Centers will be available to students with problems and will maintain close contact with the student group as a whole. The University provides for comprehensive medical and hospitalization coverage for all participants.

Cost and Financial Aid

The Regents endeavor to bring the Program within the reach of all students, regardless of their financial resources. In most instances, participants may take their University scholarships with them. The NDEA and Regents' loan fund are also available. Costs range between $2570 and $3750 for the year program (including tuition, room and board, round-trip transportation, books, health and accident insurance, some travel, and about $50 per month for personal expenses). For the future teachers' programs (two quarters), costs range between $1560 and $1740. Prospective participants who require financial assistance should counsel early with the Dean of Financial Aids.

Other Arrangements

The Education Abroad Program arranges transportation to the various Study Centers and will assist in finding inexpensive transportation back to the United States at a time and by a means of the student's choosing. In most Study Centers a variety of housing facilities is available, including residence halls and private dwellings.

Application forms for admission to the Program are available in the EAP office and are given to students following a discussion of various aspects of the Program with the EAP Academic Counselor. Completed applications are due in the EAP office by January 14, 1972 (November 15, 1971 for the United Kingdom and Ireland and the second two-quarter session of the Paris program). All further information, such as course offerings, selection, orientation, withdrawal from the Program after selection, schedules of departures and payment of fees may be obtained from the EAP Academic Counselor or Coordinator at 1131 South Hall.

THE AFRICAN STUDY CENTERS

The Nairobi Study Center

The University College Nairobi, Kenya, admits a limited number of graduate and undergraduate University of California students. Selection is made on the basis of scholarship, field of study, motivation and ability to adapt to an African environment. Study at University College Nairobi is on the British system; hence students are expected to restrict their course work to their major or area of specialization while in Africa. Course programs are continued through the academic year, thus a study program set up within one discipline during the first term must be continued throughout the three terms the student is enrolled. Examinations are given once, at the end of the academic year (in June) and are mandatory to receiving credit.

Graduates and undergraduates may select courses from offerings in Art and Design, History, English and African Literature, Linguistics, Political Science, and Sociology. Graduate students in history, political science, architecture, design and sociology can pursue independent studies in connection with the Institute for Developmental Studies, Institute of African Studies and the Housing and Research Development Unit. Excellent opportunities for research are also available in Veterinary Science.

The Study Center at the University of Ghana, Legon-Accra

The University of Ghana admits a limited number of graduate and undergraduate University of California students. Selection is made on the basis of scholarship, field of specialization, motivation and ability to adapt to an African environment. Study at the University of Ghana is on the British system; hence students are expected to restrict their course work to their major or area of specialization while in Africa. Course programs are continued through the academic year, thus a study program set up within one discipline during the first term must be continued throughout the three terms the student is enrolled. Courses may be selected from offerings in Biochemistry, Botany, Chemistry, Economics, English, African Geography, Geology, African History, Mathematics, Music, Philosophy, Physics, Political Science, Psychology, Sociology, Religions, Zoology. During their first year at the University of Ghana, all students must take a year-long lecture course in African Studies given by the faculty of the Institute of African Studies.

Graduate students may enroll in the Institute of African Studies, the Institute of Adult Education, Institute of Statistical, Social, and Economic Research, School of Administration, and in the Departments of Agricultural Economy and Farm Management, Animal Science, and Crop Science, where they may take courses appropriate to their degrees at the University of California and carry forward their research interests.

Instruction at the University of Ghana is given in English. The study of Twi will be required as a part of the orientation program, but will be optional during the academic year.

THE BEIRUT STUDY CENTER

Since The American University of Beirut is organized primarily along the lines of an American institution and since classes are small, tutorials are not provided. All courses, with the exception of those involving Arabic language and literature, are taught in English. A knowledge of Arabic is not required but all students not already fluent will be required to take a brief course in conversational Arabic during the orientation program. By reason of its location, AUB offers excellent opportunities for taking courses concerned with Middle East problems.

The AUB Faculty of Arts and Sciences grants Bachelors degrees in the following subjects: Arabic (language or literature), Art (studio), Biology, Business Administration, Chemistry, Comparative Literature (Arabic, English, French, German), Economics, Education, English (linguistics or literature), Geology, History (European, Middle Eastern, or Ancient-Archaeology), Mathematics, Philosophy, Physics, Political Science, Public Administration, Psychology, Religious Studies, Sociology (includes Cultural Anthropology), Statistics. The Faculty of Agriculture grants B.S. degrees in General Agriculture, Agricultural Economics and Rural Sociology, Animal Production and Protection, Crop Production and Protection, Food Technology and Nutrition, and Soils and Irrigation.

The Center may be of particular value to graduate students specializing in one of the following fields: Agriculture of Developing Countries, Arabic Language and Literature, Archaeology, Marine Biology, Comparative Education, Teaching of English as a Foreign Language, Development Administration, Linguistic Analysis, Middle East Area Studies (contemporary or historical), Nutrition, Religious Studies, and Tropical Health.

THE BORDEAUX STUDY CENTER

A compulsory intensive language course precedes the beginning of the fall semester at the University of Bordeaux. All courses are taught in French. Tutorials accompany those courses in which more than eight to ten UC students enroll. The Institute of Political Science is especially well known. Science courses are designed for majors only. Students wishing to enroll in Science and Mathematics courses must, in an interview, receive the permission of the instructor in charge of the course. Laboratory space is limited. All foreign language classes are literature courses.

UC students have profitably studied in the following departments: Art History, Biological Sciences, Classics, Economics, French, Geography, Hebrew, History, Mathematics, Philosophy, Physics, Political Science, Sociology and Spanish. Some courses that fulfill general education requirements in the humanities are available.

THE GOETTINGEN STUDY CENTER

A compulsory intensive language course precedes the beginning of the fall semester at the Georg August University. All courses are taught in German. Tutorials supplement courses in which more than five UC students are enrolled. Almost all majors can find courses in their fields, but space for laboratory courses in Biology and Psychology is severely limited. Science majors may be restricted to theory courses.

Departments in which UC students have studied profitably in the past are: Anthropology (cultural and physical), Art, Biological Sciences, Chemistry, Economics, German, History, Linguistics, Mathematics, Modern Languages (French, Spanish, Scandinavian, Slavic Languages), Music, Philosophy, Physics, Political Science, Psychology, Religious Studies, and Sociology. Courses that fulfill general education requirements in the humanities are available.

THE HONG KONG STUDY CENTER

Annually a limited selection of courses is offered in English by the Chinese University of Hong Kong. University of California students have previously studied with profit in the following departments: Art (studio courses, for Mandarin-speakers), Chinese (i.e., Mandarin), Economics (especially development economics and history of economic thought), English (some basic courses, including Drama, offered by British or American staff members), History, Philosophy and Sociology.

Mandarin is taught under contract at the Yale-in-China Chinese Language Centre. Undergraduates who have already completed 18 units of Chinese language study may elect up to 9 units per term of advanced Chinese. All other undergraduates are required to include 18 units of Chinese in their annual programs, or a number sufficient to raise their overall total to 18 units. A student may not take more than 9 units of Chinese in any term, and should not enter this program if he intends a higher degree of specialization.

Since there is substantial annual variation in the number and distribution of courses offered in English, and information about them becomes known only one week before instruction begins, there can be no assurance that specific courses will be available.

Advanced graduate students may occasionally arrange for independent study courses under a professor of the host university.

THE JERUSALEM STUDY CENTER

For students not fluent in Hebrew a compulsory intensive summer course in Jerusalem precedes enrollment at the Hebrew University. Instruction at the University is in Hebrew; therefore, students not fluent in Hebrew are limited in their courses. No tutorials are offered. Unless they pass a proficiency examination students are required to continue their study of Hebrew throughout the year. For foreign students a wide variety of courses in the field of Jewish Studies is offered in English.

Although the curriculum in the Humanities, Social Sciences and Sciences is very broad, laboratory space in the Sciences is limited; therefore, departmental permission is required to take science courses.

In the past, students have profitably studied in the following departments: Archaeology, Art History, Biological Sciences, Chemistry, Classics, Economics, Education, Geography, Hebraic Studies, History (emphasis on History of Jewry, Israel, and Middle East), Islamic Civilization, Linguistics, Mathematics, Philosophy, Political Science, Psychology, Religious Studies, Romance Languages, Russian Studies, Semitic Languages and Sociology.

THE MADRID STUDY CENTER

A compulsory intensive course in Spanish at the University of Madrid precedes the fall semester. All instruction is in Spanish. A core program, organized for the UC Center and other American programs, consists of courses in the following fields: Art History, History of Spain and Spanish America, Spanish Folk Music, Political Science (with special reference to Spain and Latin America), Social Psychology, Sociology, Spanish and Spanish American Literature and Linguistics. Since these courses are designed for American students, there is no need for tutorials.

In addition to the core program students can enroll, with the permission of the Director and the appropriate Faculty, in regular courses of the University of Madrid. In the past, students have done so in Anthropology (cultural), Economics, History, Linguistics and Literature.

THE MEXICO CITY STUDY CENTER

The Study Center in Mexico is associated with the Instituto Nacional de Antropologia e Historia and the Museo Nacional de Antropologia, and offers a broad introduction to Mexican culture. Courses are conducted in Spanish by Mexican professors, several of whom are also on the staff of the National Autonomous University of Mexico. The program is for both graduate and undergraduate students.

A program of two quarters duration is designed primarily for graduates (with a Spanish major or minor) working toward a Teaching Credential. Students in this category may remain in Mexico for a third or fourth quarter if this would assist them in achieving their long-range academic objectives. Graduate students with a comparable background in Spanish but without concerns for the Teaching Credential are also eligible for the program, but only after completing one full year of graduate study on a UC campus.

Undergraduate students with a general interest in the curriculum participate in the Mexico City program for a period of four concentrated academic quarters, starting in September and concluding in July. A special program involving study projects throughout Mexico is a requirement for undergraduates during the fourth quarter.

Both graduates and undergraduates in all categories are assisted, when qualified, in enrolling for additional course work in Mexican academic institutions associated with the program. Undergraduates are selected for the Mexico City Study Center by the same criteria used for other Study Centers.

Courses are available in Mexican Art and Architecture, History of Mexico, Mexican Sociology, Spanish Language, Mexican Literature, and Education (teaching English as a second language, and curricula and instructional procedures and materials used in teaching Spanish).

THE PADUA STUDY CENTER

Two intensive compulsory courses in language and contemporary Italian history at the University of Padua from early September to mid-October precede the opening of the academic year. All instruction is in Italian and tutorials accompany courses in which several UC students are enrolled. Excellent opportunities are available for study in the following fields: Art History; Ancient, Medieval, Modern and Contemporary European History; Economics (international economic organization, the economics of developing countries); Italian Language and Literature; Philosophy; Political Science; and Religion (history and philosophy of religion, history of Christianity and the Church, early Christian literature).

By special arrangement, advanced art students on the Padua program may take part of their course work at the Venice Academy of Fine Arts in painting, drawing, sculpture and printmaking. Courses fulfilling general education requirements are available in the Humanities and Social Sciences.

THE PARIS STUDY CENTER

The University of California Study Center in Paris, a graduate program for the training of teachers of French, operates in close association with the Institut des Professeurs de Francais a l'Etranger, an institute of the Faculty of Letters and Sciences of the University of Paris (Sorbonne). The program is designed for future teachers of French and will be conducted in two independent sessions of two quarters each. Students may enroll in either the autumn session from September 1 to January 30 or the spring session from February 1 to June 30. All participants must be French majors and must have been admitted to a Teaching Credential Program of the University of California prior to departure for Paris.

Courses are planned for the specific needs of credential students and include the following: graduate courses in Education and graduate seminars in French Linguistics and Literature; upper division courses in French Language and Linguistics, History of French Art, History of French Music, and French Political and Social Institutions.

THE SCANDINAVIAN STUDY CENTERS

The UC programs in Scandinavia are located at the University of Lund, Sweden and at the University of Bergen, Norway. Students are prepared for study in Sweden in an intensive language program held in Berkeley during the summer, and during the early fall in Lund. Students going to Bergen study Norwegian in an intensive language program centered mainly in an active setting in rural Norway. Courses are taught in Swedish and Norwegian respectively, but a limited number of courses in the Social Sciences are taught in English. Many assigned texts in the Social Sciences and in the Sciences are in English. When needed to overcome language handicaps, tutorials supplement lecture courses.

Courses are offered in the following fields:

LUND: Anthropology, Architecture, Art History, Biochemistry, Biology, Botany, Chemistry, City and Regional Planning, Conservation and Pollution, Drama and Film History, Economics, Engineering, Folklore, Geography, Geology, History, Law, Linguistics, Mathematics, Music, Philosophy, Physics, Political Science, Psychology, Religious Studies, Scandinavian Studies, Sociology, and Zoology.

BERGEN: Anthropology, Art History, Biology (especially marine biology), Botany, Chemistry, Economics and Business Administration, Geography, Geology, Geophysics, History, Mathematics, Norwegian, Oceanography, Philosophy, Physics, Psychology, Religious Studies, and Sociology.

THE TOKYO STUDY CENTER

Since the International Christian University is organized primarily along the lines of an American institution, tutorials are not offered, but independent study with individual faculty members is available. Before enrolling, students must have completed one year of college Japanese or its equivalent. During their year of study students are expected to complete an additional 18 units of work in Japanese language. Courses in Japanese language are recognized as the best offered in Japan. Excellent opportunities exist for students interested in problems of the Orient, but a limited knowledge of Japanese may restrict students to courses offered in English. The number of courses taught in English usually changes from year to year since such courses depend on foreign visiting faculty, or permanent I.C.U. faculty (Japanese and foreign) who can teach in English.

Students have profitably studied in the following fields: Japanese Archaeology, Japanese Art, Chinese Language, Economics of the Far East, English Literature, History of the Far East, Japanese Language and Literature, Oriental Philosophy, Physics, Political Science, Religious Studies, Sociology of Japan.

THE STUDY CENTER IN THE UNITED KINGDOM AND IRELAND

The following institutions in England, Scotland and Ireland admit UC students in all major fields: University of Birmingham; University of Cambridge, Girton College; University of Dublin, Trinity College; University of East Anglia; University of Edinburgh; University of Oxford, Wadham College; University of St. Andrews; University of Stirling; and University of Sussex.

The number of University of California students admitted to each university depends on the spaces available in any given department. Once accepted into a university department in his area of specialization, the student is expected to pursue his studies in the department only. In general, students may not take courses in other departments or colleges. Tutorials are an integral part of any course of study and constitute the greater part of a student's load at Cambridge, Oxford, and Sussex. The following enumeration of fields of study at individual universities gives an indication in which departments students were enrolled in the past. In coming years, depending on availability of spaces and on the applicants' needs, other fields may be added.

University of Birmingham: Anthropology, Biological Sciences, Chemistry, Economics, English, Geography, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Sociology.

University of Cambridge, Girton College: English Literature.

University of Dublin, Trinity College: Art History, Economics, English, History, Mathematics, Philosophy, Psychology. (Trinity encourages some students to follow a program in General Studies, that is, general courses in the humanities).

University of East Anglia: Primary emphasis for UC students in English Literature and History.

University of Edinburgh: Anthropology, Art (studio: Edinburgh College of Art; history: University of Edinurgh), Biological Sciences, Chemistry, Economics, English, History, Linguistics, Mathematics, Philosophy, Physics, Political Science, Psychology, Sociology. Students wishing to study in the Department of Music must take qualifying examinations before enrolling. Examinations are given after arrival in Edinburgh in mid-September.

University of Oxford, Wadham College: English, History, Philosophy, Psychology. Students are free to take courses outside their field of specialization.

University of St. Andrews: Biological Sciences, English, History, Mathematics, Philosophy, Physics, Religious Studies. Courses in elementary language instruction for non-language majors are available.

University of Stirling: English, History, Philosophy, Psychology. Students are free to take courses outside their field of specialization.

University of Sussex: Art History, Biological Sciences, Chemistry, English, History, Mathematics, Philosophy, Physics, Political Science, Psychology, Sociology.

ELECTRICAL ENGINEERING

John A. Baldwin, Ph.D., *Professor of Electrical Engineering.*
Albert G. Conrad, E.E., *Professor of Electrical Engineering, Emeritus.*
Glen J. Culler, Ph.D., *Professor of Electrical Engineering.*
Steven Horvath, Ph.D., *Professor of Electrical Engineering.*
Kenneth L. Kotzebue, Ph.D., *Professor of Electrical Engineering.*
George L. Matthaei, Ph.D., *Professor of Electrical Engineering.*
Philip F. Ordung, D. Eng., *Professor of Electrical Engineering.*
John G. Skalnik, D. Eng., *Professor of Electrical Engineering (Chairman of the Department of Electrical Engineering).*
Glen Wade, Ph.D., *Professor of Electrical Engineering.*
Jorge R. Fontana, Ph.D., *Associate Professor of Electrical Engineering. (On leave.)*
Augustine H. Gray, Jr., Ph.D., *Associate Professor of Electrical Engineering.*
Glenn R. Heidbreder, D.Eng., *Associate Professor of Electrical Engineering.*
James A. Howard, Ph.D., *Associate Professor of Electrical Engineering.*
Edwin B. Stear, Ph.D., *Associate Professor of Electrical Engineering.*
Roger C. Wood, Ph.D., *Associate Professor of Electrical Engineering.*
Phillip E. Allen, Ph.D., *Assistant Professor of Electrical Engineering.*
Richard A. Brooks, Ph.D., *Assistant Professor of Electrical Engineering.*
David L. Heald, Ph.D., *Assistant Professor of Electrical Engineering.*
Leon Presser, Ph.D., *Assistant Professor of Electrical Engineering.*

◆

Joseph J. Sayovitz, Ph.D., *Lecturer in Electrical Engineering.*

UNDERGRADUATE PROGRAMS

Schedules should be planned to meet the requirements in General Education and in the major. Detailed descriptions of these requirements are listed in this bulletin under the heading, "College of Engineering" and in the separate bulletin, "College of Engineering Announcement".

The following lower-division courses are required: EE 3A–B, EE 2A–B–C, EE 5, Chemistry 1A–B–C, Chemistry 1A–L, 1B–L, 1C–L, Math 3A–B–C, ME 10, Math 5A–B–C, Physics 7A–B–C and Physics 7B–L, 7C–L.

The following upper-division courses are required: EE 130A–B, EE 134, EE 136A–B, EE 139A–B, and ME 105.

Students must select a minimum of twenty-four units from a group of elective EE courses. With the exception of EE 105 and EE 130C, the EE elective units are normally earned in the senior year. Examples of acceptable senior programs are given in the following listings. More than the needed twenty-four EE units are listed in each of the three example programs to indicate that a degree of flexibility is available within each program. Although not specifically listed in the sample programs, EE 170A–B–C and EE 199 may be selected. Also, representative non-EE elective courses are listed.

(a) *Program in Computer Engineering and Computer Science*

Fall:	EE 165A	EE 147A	EE 146A	
Winter:	EE 165B		EE 146B	EE 152A
Spring:	EE 165C	EE 150	EE 151	EE 152B

Non-EE electives: Math 104A–B–C, Math 108A–B, Math 110, Math 111A–B–C.

(b) *Program in Solid-state and Quantum Electronics, Microwaves and Communications*

Fall:	EE 160A		EE 146A
Winter:	EE 160B	EE 144A	EE 146B
Spring:	EE 160C	EE 144B	EE 146C

Non-EE electives: Math 108A–B, Math 122A–B, Physics 115A–B, Physics 123, and Physics 141.

(c) *Program in Controls, Systems, and Energy Conversion*

Fall:	EE 147A	EE 165A	EE 143A	EE 146A
Winter:	EE 147B	EE 152A	EE 143B	EE 146B
Spring:	EE 147C	EE 150	EE 155	EE 146C

Non-EE electives: Math 104A–B–C, Math 108A–B, Math 122A–B

THE DEGREE OF MASTER OF SCIENCE

Requirements

1. In addition to the general requirements for admission to graduate status, the department requires a bachelor's degree or its equivalent from a school or college of recognized standing.

2. Applicants with undergraduate preparation that is deemed inadequate may be required to take additional courses.

3. The degree is administered under Plan II, which requires 36 units of course work approved by the departmental director of graduate studies, with a minimum of 18 units in graduate courses (200 series) and with at least 12 of these in the Department of Electrical Engineering, and no more than 50 percent or 18 units, whichever is less restrictive of upper division courses in engineering, mathematics, chemistry, physics or other approved areas, and the passing of a comprehensive final examination. Fields of study include solid-state electronics, quantum electronics, magnetics, microwaves, communications, computers, automatic controls, and machinery and circuits.

4. Programs in the various fields of study are tailored to meet individual needs. For example, a typical program in the computer area might include selections from the undergraduate courses EE 105, EE 150, EE 151, EE 152A–B and EE 165A–B–C as well as selections from the graduate courses EE 252A–B–C, EE 273A–B–C, and EE 275A–B–C.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Requirements

1. In addition to the general requirements for admission to graduate status, the department requires a Master of Science or equivalent, and evidence of ability to profit from both instructional and research activities of the Ph.D. program.

2. Subject to having satisfied the prescribed residence requirements, the student may take the oral qualifying examination at such time as the faculty of the department deems the student to be prepared.

3. There are no specific course requirements for the Ph.D. program; however, the student will be expected to elect such courses as he needs to prepare for the qualifying examination and for his research.

4. Prior to the oral qualifying examination, the department will administer such examinations as it deems necessary for the determination of the adequacy of the depth and breadth of the student's knowledge.

5. A dissertation will be submitted and defended in an oral examination.

TEACHING CREDENTIALS

Either a major or a minor in Engineering may serve as an appropriate part of the program of studies required for a junior college teaching credential in California. A student wishing to secure this credential should confer with designated counselors in the College of Engineering and in the Graduate School of Education.

2A–B–C. Circuits Devices and Systems.
(4–4–4) I, II, III. Mr. Baldwin

Prerequisites: Math. 3A–B–C, ME 10, or consent of instructor.

1. Circuits: natural response, forced response, complete response, sinusoidal steady state, theorems. 2. Electronic Devices: principles, linear models, amplifiers, digital electronics, dc machines, transformers. 3. Systems: feedback, analog computers, instrumentation, automatic control. 4. Online computing.

3A–B. Computer Solutions of Engineering and Science Problems. (2–2) I, II.
The Staff

Prerequisite: Math 3A–B (can be taken concurrently).

Application of computers to engineering and scientific problems. FORTRAN language programming, elements of numerical analysis including introduction to error sources, recursion, numerical calculus, root finding, etc. Students will use the computer. Ch.E. 3, EE 3, ME 3, and Nuc.E. 3 are identical courses.

4. Engineering, the University, and Society. (1) I. Mr. Wade

Prerequisite: None.

How engineering relates to the university and to society. Series of ten lectures, many to be given by guest speakers, will cover (1) relationship between a liberal university education and the objective of a university engineering department, and (2) the place of engineering in society.

5. Introductory Digital Computing Lab. (2) I, III. Mr. Heald

Prerequisite: None.

To provide lower division students with a useable knowledge of Fortran coding for program preparation for, and operational knowledge of, an IBM 360/75 digital computer.

6A–B. Circuits and Electronics. (4–4) II.
The Staff

Prerequisites: EE 2A, ME 10 or consent of instructor.

Introduction to electronics and instrumentation systems for the non-EE major.

Upper Division Courses

105. An Introduction to Digital Computing. (3) III. Mr. Brooks

Prerequisite: EE 5 or equivalent.

Operation of digital computing systems and an introduction of software.

107A–B–C. Directed Research. (1–4) I, II, III, IV. The Staff

Prerequisite: Consent of instructor.

Directed research projects open to qualified undergraduates in Electrical Engineering or related fields. Research projects are to be arranged by student and staff member. The course is designed to give unusual undergraduates early experience in research. Not acceptable for departmental senior electives.

130A–B–C. Engineering Analysis. (4–4–3) I, II, III. Mr. Gray

Prerequisite: Math 4 and Physics 7A–B–C and EE 2, or consent of instructor.

Coordination of previous work in mathematics, mechanics, and physics with electrical engineering. A study of mathematical and physical principles applicable to engineering.

134. Introductory Field Theory. (3) I.
Mr. Matthaei

Prerequisites: Physics 7B or equivalent, Math 4B.

Electric and magnetic field concepts and laws. Fundamentals of vector analysis. Dipoles, properties of materials, energy, Maxwell's equations. Laplace, Poisson, and wave equations, and methods for their solution. Plane waves.

136A–B. Electronics. (4–4) II, III.
Mr. Kotzebue

Prerequisite: Mathematics 4B, EE 2C or consent of instructor.

Electronics for electrical engineering students. The emphasis is on the study of basic circuits employing semiconductor devices, with particular attention given to the analysis and design of small-signal, broadband amplifiers.

136C. Large-Signal Electronics. (4) I.
Mr. Kotzebue

Prerequisites: 136A–B or consent of instructor.

A study of semiconductor electronics circuits with emphasis on the analysis and design of large signal amplifiers, oscillators, and wave-shaping circuits.

138A. Introductory Circuits. (3) I. Mr. Allen

Prerequisites: Transfer junior standing in Electrical Engineering.

Circuit theory for transfer students at the junior level who have not had the equivalent of EE 2. Must be taken concurrently with EE 138B.

138B. Introductory Electronics. (3) I.
Mr. Kotzebue

Prerequisites: Transfer junior standing in Electrical Engineering.

Electronics for transfer students at the junior level who have not had the equivalent of EE 2. Must be taken concurrently with EE 138A.

139A–B. Network Theory. (4–4) II, III.
Mr. Allen and Mr. Wood

Prerequisite: EE 2C or equivalent, Math 4B, or consent of instructor.

A study of network properties and solutions by classical and transformation methods.

143A–B. Alternating-Current Machinery. (4–3) I, II. Mr. Conrad

Prerequisite: EE 139A–B, or consent of instructor.

Principles of alternating-current machinery. Transformers, induction machinery, synchronous machines, power conversions, adjustable-speed drives.

144A–B. Electromagnetic Fields and Waves. (3–3) II, III. Mr. Matthaei

Prerequisite: EE 134 or equivalent.

Waves on transmission lines, Maxwell's equations, mathematical techniques for dynamic fields, skin effect, propagation and reflection of electromagnetic waves in materials with different electrical properties, waveguides, resonant cavities, and antennas. Microwave and optical device examples. Selected experiments.

146A–B–C. Communication Circuits and Systems. (3–3–3) I, II, III.
Mr. Heidbreder

Prerequisites: EE 136A–B, EE 139A–B, EE 130A–B, or consent of instructor.

Analytical representations of signals and noise, the role of Fourier and Laplace transformations in communication systems analysis; modulation theory, design of modulators and demodulators, noise producing mechanisms in electronic circuits, system performance evaluations, introduction to the fundamental concepts of information theory.

147A. Introduction to Feedback and Control Systems. (3) I. Mr. Stear

Prerequisites: EE 130A–B, EE 139A–B, or consent of instructor.

Mathematical description of continuous and discrete systems. Laplace- and z-transform solution of linear, time-invariant differential and difference equations. Block diagrams. Stability of linear, time-invariant systems. Routh-Hurwitz method. Nyquist plots. Bode plots. Nichols charts. Root-locus techniques. Describing functions. Krylov-Bogoliubov method.

147B. Design of Control Systems by Classical Methods. (4) II. Mr. Brooks and Mr. Stear

Prerequisites: EE 147A or consent of instructor.

Dominant pole-pair criteria. General frequency-domain criteria. General time-domain specifications. Compensation. Direct synthesis methods. Computer-aided design methods. Automated computer design methods. Compensation of nonlinear systems by use of describing functions.

147C. State-space Methods for Control Systems. (4) III. Mr. Brooks and Mr. Stear

Prerequisites: EE 147B or consent of instructor.

Elementary matrix algebra. Vectors and vector spaces. State-space description of systems. Solution of state-space equations. Controllability and observability of simple and composite systems. Kalman canonical form. Stability theory of linear and nonlinear systems by use of Liapunov and phase-plane analysis.

150. Analog Computers. (3) III. Mr. Wood

Prerequisite: EE 136A–B, EE 139A–B or consent of instructor.

A study of analog computing systems.

151. Computer Memories. (3) III. Mr. Baldwin

Prerequisites: EE 2 or EE 138A–B or consent of instructor.

State-of-the-art random-acess memory devices. Review of electricity and magnetism relevant to memory device operation. Core switching properties; switching speed core testing. Core memories: linear select, coincident current Z½D. Memory accessing. Read-only memory. High-speed memory: thin films, plated wire.

152A. Switching Theory. (3) II. Mr. Howard

Prerequisite: EE 105 or consent of instructor.

Boolean algebra, switching functions. Application of Boolean algebra to the design and analysis of combinational logic nets; minimization procedures. Analysis and synthesis of sequential switching circuits; synchronous and asynchronous operation; state minimization; hazards and races.

152B. Digital System Design. (3) III. Mr. Howard

Prerequisite: EE 152A or consent of instructor.

Formal description of digital systems. Design of functional subsystems; arithmetic processors, storage systems, sequence generators. Organization and design of general-purpose digital computers and of special purpose digital systems.

155. Solid-State Power Devices. (3) III. Mr. Skalnik

Prerequisite: EE 136A–B, EE 143A, EE 160A or consent of instructor.

High-level operation of solid-state devices. Application to rectification, inversion and control.

160A–B–C. Solid-State Device Electronics. (3–3–3) I, II, III. Mr. Skalnik, Mr. Wade

Prerequisite: EE 136A–B, EE 139A–B, ME 105 and EE 130A–B or equivalent.

Quantum-mechanical principles associated with electron behavior in solids. Electron transport phenomena in semiconductors and P-N junctions, and of the theory of operation and the methods of fabrication of solid-state and microelectronic devices.

165A. Information Structures. (3) I. Mr. Presser

Prerequisite: EE 105 or consent of instructor.

Study of fundamental structures employed to represent information in main computer storage. Advantages and disadvantages of using alternative information structures in the solution of problems. Methods of storage management. Information structures in programming languages.

165B. Formal and Programming Languages. (3) II. Mr. Presser

Prerequisite: 165A or consent of instructor.

Basic concepts in the theory of formal languages and automata. Analysis and evaluation of programming languages from a data and control structure point of view. Interactive languages. Consideration of various programming languages.

165C. Translation of Programming Languages. (3) III. Mr. Presser

Prerequisite: EE 165B or consent of instructor.

Structure of translators. Assemblers, interpreters and compilers. Basic translation techniques. Translators for batch and on-line environments. Translation of precedence languages. Rudiments of translator writing systems.

170A–B–C. Biomedical Engineering. (3–3–3) I, II, III. Mr. Horvath

Prerequisite: Senior standing in Engineering.

Application of engineering principles and methods to problems arising in the life sciences (medicine and biology); analysis of the function and principles of operation of living systems; modeling and simulation of physiological regulatory systems; physiological philosophy of instrument design; etc.

199. Independent Studies in Electrical Engineering. (1–5) I, II, III. The Staff

Directed individual study, normally experimental, open to qualified seniors in the Department of Electrical Engineering. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

201A–B. Electromagnetic Theory. (3–3) I, II. Mr. Matthaei

Prerequisite: EE 144A–B or equivalent.

Fundamental theorems and techniques for treatment of electromagnetic boundary value and radiation problems. Perturbational, variational, and computer-numerical methods, with microwave engineering examples.

201C. Antennas. (3) III. Mr. Matthaei

Prerequisite: EE 201A–B or permission of instructor.

Classical and computer-numerical methods for analysis and design of antennas. Single-element antennas, antenna arrays and analysis of mutual-impedance effects, aperture antennas, and frequency independent antennas.

201D. Microwave Circuits. (3) III. Mr. Matthaei

Prerequisite: EE 201A–B or permission of instructor.

Field and circuit theory applied to waveguide and transmission-line networks. Analysis of discontinuities and couplings, resonators, filters, and directional couplers. Fundamental limitations for wideband impedance matching, design techniques for optimum wideband coupling structures for solid-state (and other) devices.

202A–B. Microwave Solid-State Devices. (3–3) I, II. Mr. Kotzebue

Prerequisite: EE 144A–B or consent of instructor.

An introduction to the principles of active and passive microwave solid-state devices, including parametric amplifiers, tunnel diode devices, harmonic generators, bulk effect devices, and microwave transistors.

203A–B–C. Introduction to Statistical Communication Theory. (3–3–3) I, II, III. Mr. Wood

Prerequisite: undergraduate courses in linear transform theory and automatic controls.

A study of the mathematical analysis of random signals and noise, the response of systems to random inputs, system synthesis based on statistical performance specifications and applications of the concept of a statistical measure of information content in a signal.

204A–B–C. Advanced Engineering Analysis. (3–3–3) I, II, III. Mr. Gray

Prerequisite: EE 130A–B or equivalent.

Selected topics including the applications of Lagrange's and Hamilton's equations, the calculus of variations, Markov processes, etc.

206A–B–C. Network Analysis and Synthesis. (3–3–3) I, II, III. Mr. Ordung

Prerequisite: EE 139A–B or equivalent.

Analysis of linear networks, criteria for reliability realization techniques of synthesis and approximation methods.

207A–B–C. Projects. (1–6) I, II, III. The Staff

Graduate research projects to be arranged between students and staff members.

208A–B–C. Optical Systems Theory. (3–3–3) I, II, III. Mr. Wade

Prerequisites: EE 144A–B or equivalent, EE 146A–B–C or equivalent.

Communication theory techniques, including Fourier transforms and autocorrelation functions, as applied to optical systems. Mathematical descriptions due originally to Rayleigh, Sommerfeld, Abbe, Michelsen, Kirchoff, Fresnel and others. Coherent image formation, holographic wave-front, reconstruction, optical data processing and other topics.

209A–B–C. Theory of Solid-State Devices. (3–3–3) I, II, III. Mr. Wade

Prerequisite: EE 160A–B or equivalent.

A survey of the modern theory of modeling solid-state devices to form useful equivalent circuits. Derivation of Fermi-statistic and a discussion of band theory to form a link with Modern Physics. Special topics to suit students' needs.

210. Special Topics in Electrical Engineering. (1–6) I, II, III. The Staff

Special seminars or group study on research subjects of current interest. Course conduct to be arranged.

211A–B. Quantum Electrodynamics for Engineering Applications. (3–3) II, III. Mr. Wade

Prerequisite: EE 160A or consent of instructor.

Dirac formulation. "Ket" and "Bra" vectors. Linear phonons. Interaction between electromagnetic fields and charged particles. Interaction of radiation and matter typical to problems in quantum electronics and non-linear optics. Directed toward engineering applications rather than high-energy physics.

230A–B–C. Solid State Device Design and Processing. (4–4–4) I, II, III. Mr. Skalnik, Mr. Ordung

Prerequisites: EE 160A–B–C, or equivalent.

Consideration of solid state device design, especially as it pertains to fabrication and processing. The course is supported with a laboratory containing diffusion furnaces, an epitaxial reactor, evaporators, interferometer, 4-point probe, and associated equipment.

236A–B–C. Linear Active Circuits. (3–3–3) I, II, III. Mr. Allen and Mr. Kotzebue

Prerequisite: EE 136A–B or consent of instructor.

Selected topics in the design of linear active circuits, with emphasis on semiconductor devices. Topics to be covered include transistor modeling, high-frequency performance and stability criteria, feedback amplifiers, video amplifiers, direct-coupled amplifiers, and RC active networks.

247A. Mathematical Programming Methods for Systems Optimization. (4) I. Mr. Brooks and Mr. Stear

Prerequisites: 147A–B–C or consent of instructor.

Linear programming models and solutions. Functions of variables, partial derivatives, gradients, and the implicit function theorem. Classical optimization methods for non-linear programming models. Kuhn-Tucker theory. Gradient computational methods for non-linear programming problems. Dynamic programming. Stochastic sequential decision problems.

247B. Optimal Control Systems. (4) II. Mr. Stear

Prerequisites: EE 247A or consent of instructor.

Function spaces. Formulation of optimal-control problems as variational calculus problems. Necessary and sufficient conditions for extrema of general functionals. First-order necessary conditions for extrema of constrained variational problems. Necessary conditions for singular problems. Optimum feedback controls. Steepest-descent computational algorithms.

247C. Optimal Estimation, Filtering, and Smoothing. (4) III. Mr. Stear

Prerequisites: EE 247B or consent of instructor.

Random variables, random vectors, conditional density functions and conditional expectations. Covariance matrices and jointly Gaussian random vectors. Basic estimation theory. Random vector sequences and processes. Calculus-in-the-mean for random processes. Sequential, linear, minimum-variance estimation and Kalman filtering. Optimal sequential smoothing.

251A–B. Engineering Magnetics. (3–3) I, II. Mr. Baldwin

Prerequisite: EE 151 or consent of instructor.

Course content is variable, depending on interests of students. Digital recording: disc, tape and drum. Advanced magneto-optic memories. Content addressable memory. Real-life aspects of thin films. Analog tape recording. Microwave ferrite and garnet devices.

EE 252A. Sequential Machines and Automata Theory. (3) I. Mr. Howard

Prerequisites: EE 152A–B or consent of instructor.

Definition and representation of finite state automata and sequential machines. Equivalence of states and machines, congruence, reduced machines, and analysis and synthesis of machines. Decision problems of finite automata, partitions, covers, generalized and incomplete machines. Regular expressions and machine specifications.

EE 252B. Advanced Digital Computer Design and Organization. (3) II. Mr. Howard

Prerequisite: EE 152A–B or consent of instructor.

Computer system design problems such as logic and organization of digital arithmetic processors, algorithmic acceleration, storage management, memory utilization, error detection in digital arithmetic. Comparison of examples of various solutions to system design problems. Selected topics on novel computer organizations.

EE 252C. Advanced Topics in Switching Theory. (3) III. Mr. Howard

Prerequisite: EE 152A–B or consent of instructor.

Threshold logic; basic properties, threshold functions, realization. Ternary switching circuits. Majority and minority logic. Switching circuit reliability. Multilevel synthesis techniques. Comparison of algebraic simplification methods.

260A–B. Principles of Quantum Electronics. (3–3) II, III. Mr. Fontana

Prerequisites: EE 160A and EE 144A or equivalent.

Energy levels in atoms, ions and molecules. Interaction between radiation and quantized systems. Stimulated emission devices. Lasers.

273A–B–C. Software Architecture. (3–3–3) I, II, III. Mr. Presser

Prerequisite: Consent of instructor.

Study of the structure and evaluation of operating systems. Integrated consideration of architectural software-hardware trade-offs.

EE 275A–B–C. Special Topics in Computer Programming, Design, and Applications. (3–3–3) I, II, III. Mr. Howard and Mr. Wood

Prerequisite: Consent of instructor.

Computer seminar or group study on computer topics of current interest including computer graphics, hybrid computations, simulation, advanced compiler theory, on-line time-sharing systems and pattern recognition. With consent of instructor may be repeated for credit.

596AA–596ZZ. Directed Research. (1–6) I, II, III. The Staff

Prerequisites: None.

Research, either experimental or theoretical, may be undertaken by properly qualified graduate students under the direction of a faculty member. Faculty members (A-) and subject areas (-A) are designated by the following code: Allen A; Baldwin, B; Brooks, C; Conrad, D; Fontana, E; Gray, F; Heald, G; Heidbreder, H; Horvath, I; Howard, J; Kotzebue, K; Ordung, L; Presser, M; Skalnik, N; Stear, O; Sayovitz, P; Wade, Q; Wood, R. Biomedical Engineering, A; Communications, B; Computers, C; Controls and Systems, D; Electronics, E; Energy Conversion, F; Engineering Analysis, G; Engineering Field Theory, H; Magnetics, I; Networks, J; Solid State, K; Quantum Electronics, L.

ENGLISH

Edgar Bowers, Ph.D., *Professor of English.*
Joseph Foladare, Ph.D., *Professor of English.*
William Frost, Ph.D., *Professor of English.*
Earl Leslie Griggs, Ph.D., D.Litt., *Professor of English, Emeritus.*
Donald L. Guss, Ph.D., *Professor of English.*
Hugh Kenner, Ph.D., F.R.S.L., *Professor of English.*
Edward Loomis, Ph.D., *Professor of English.*
J. Chesley Mathews, Ph.D., *Professor of English.*
Patrick J. McCarthy, Ph.D., *Professor of English.*
[2]Marvin Mudrick, Ph.D., *Professor of English.*
Donald R. Pearce, Ph.D., *Professor of English.*
Alan Stephens, Ph.D., *Professor of English.*
Lawrence Willson, Ph.D., *Professor of English.*
Frank C. Gardiner, Ph.D., *Associate Professor of English (Chairman of the Department).*
[3]William S. Marks, III, Ph.D., *Associate Professor of English.*
John M. Ridland, Ph.D., *Associate Professor of English.*
[2, 3]Benjamin T. Sankey, Ph.D., *Associate Professor of English.*
Herbert N. Schneidau, Ph.D., *Associate Professor of English.*
Douwe Stuurman, B.Litt. (Oxon.), *Associate Professor of English.*
Homer D. Swander, Ph.D., *Associate Professor of English.*
H. Porter Abbott, Ph.D., *Assistant Professor of English.*
David J. Aitken, Ph.D., *Assistant Professor of English.*
Steven Allaback, Ph.D., *Assistant Professor of English.*
Sheridan Blau, Ph.D., *Assistant Professor of English.*
Watson G. Branch, Ph.D., *Assistant Professor of English.*
Norman B. Council, Ph.D., *Assistant Professor of English.*
[1]Walter Davis, Ph.D., *Assistant Professor of English.*
Edward T. Duffy, Ph.D., *Assistant Professor of English.*
John R. Elliott, Ph.D., *Assistant Professor of English.*
Robert A. Erickson, Ph.D., *Assistant Professor of English.*
Michael Fishbein, Ph.D., *Assistant Professor of English.*
Christopher F. Givan, Ph.D., *Assistant Professor of English.*
Richard Helgerson, Ph.D., *Assistant Professor of English.*
Anne Lehman, Ph.D., *Assistant Professor of English.*
[3]Lawrence Levin, Ph.D., *Assistant Professor of English.*
David C. McPherson, Ph.D., *Assistant Professor of English.*
Shephen J. Miko, Ph.D., *Assistant Professor of English.*
Mitzi Myers, Ph.D., *Assistant Professor of English.*
[1]Robert A. Potter, Ph.D., *Assistant Professor of English.*
John M. Silverman, Ph.D., *Assistant Professor of English.*
[1]Logan H. Speirs, M.A., *Assistant Professor of English.*
[2]Thomas R. Steiner, Ph.D., *Assistant Professor of English.*
Frederick Turner, B.Litt. (Oxon.), *Assistant Professor of English.*
Albert Wachtel, Ph.D., *Assistant Professor of English.*
Kim T. Ziegel, Ph.D., *Assistant Professor of English.*
[1]Everett Zimmerman, Ph.D., *Assistant Professor of English.*

◆

Russell Astley, M.A., *Acting Assistant Professor of English.*
Michael W. O'Connell, M.Phil., *Acting Assistant Professor of English.*
Robert H. Pierce, B.A., *Acting Assistant Professor of English.*
Robert P. Brandts, M.A., *Lecturer in English.*
Elliott Evans, M.A., *Lecturer in English.*

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[1] Absent on Leave Fall 1971.
[2] Absent on Leave Winter 1972.
[3] Absent on Leave Spring 1972.

Michael A. Fernandez, M.A., *Lecturer in English (Winter and Spring).*
Stephen Lacey, M.A., *Lecturer in English.*
Roy Moore, M.A., *Lecturer in English.*
Eileen A. Pidgeon, M.A., *Lecturer in English.*
Jonathan Ramsey, M.A., *Lecturer in English.*
Kenneth Rexroth, *Lecturer in English.*
Errol R. Seaton, M.A.T., *Lecturer in English.*
Toni Thornton, M.A., *Lecturer in English.*
Herbert A. Rickert, M.A., *Associate in English.*

The Department of English (1) provides all undergraduates with the opportunity for guided literary study, through the 1A and 1B courses; (2) makes available to all students a wide range of courses that may be taken for credit as electives; (3) offers a major leading to the Bachelor of Arts degree; (4) offers graduate programs leading to the M.A. and Ph.D. degrees; and (5) collaborates with the Departments of Foreign Languages and Literatures in the Comparative Literature undergraduate major program.

The English major pursues a planned program of English courses and cognate studies from which he can acquire a sound and orderly knowledge of our literature and the wisdom and exhilaration available in it, as well as a poised critical sense and some ability in graceful and efficient expression.

Preparation for the Major

To prepare for the major the student must pass courses 1A–1B or equivalent, Classics 37, 38, 39, *or* 40, English 20, 30, *and* 40, with an average grade of *C* or higher, and History 4A–4B–4C. (Upper division majors may satisfy the History requirement by substituting one of the following sequences: History 111A–B, 113A–B, 115–116, 140A–B, or 141A–B.)

All students are urged to confer with one of the departmental undergraduate advisers at the time of declaring the English major, and should consult an adviser about their academic program at least once before their senior year. Students interested in a major in Comparative Literature (English plus a foreign literature) may consult specially designated undergraduate advisers in the English Department.

The Major

For his upper division program, the student must take nineteen units in the following courses, as far as possible in the order listed: English 117A–117B (Shakespeare), 162 (Milton), 152A (Canterbury Tales), and 197 (Senior Seminar). Twenty units in electives will be required within the Department. (102A–102B–102C, 106G, 117E, and 183 may not be used to fulfill requirements for the major.)

Students who had commenced working toward the English major before the above requirements came into effect (July, 1967) may substitute, without penalty, courses now available for courses formerly required. Similarly, students who have already taken courses formerly required for the English major but no longer listed here will be able to stubstitute them for comparable courses in the above list. Each substitution requires a faculty adviser's approval.

English literature has been constantly influenced by that of the Continent, and ability to read at least one continental language is essential for understanding the procedures of English writers. Each student must complete French 6, German 6, Greek 106, Latin 106, Italian 6, Russian 6, or Spanish 6, or demonstrate equivalent knowledge of one of these languages by passing an examination. Another language may be substituted with the consent of the chairman. Undergraduates contemplating graduate study in English should consult with the graduate adviser concerning the foreign language requirements for the M.A. and Ph.D. degrees, and should prepare to satisfy them.

History 140A–B (History of England) is strongly recommended for all English majors.

The Minor

For the minor in English thirty-two units are required: English 1A–1B, 46A–B–C or 102A–B–C, 117E, 130 (or 136, 137, 138, or 139) and 4 units of English electives. 106G may not be used for the minor.)

GRADUATE PROGRAM

The department requests that applicants submit a paper written in an upper division English course with their applications.

The department recommends but does not require that the candidate present scores on the Graduate Record Examination.

I. Requirements for the Degree of Master of Arts:

A. Courses

Plan A (primarily for students who are also candidates for the Secondary or Junior College Credential and who do not plan to go beyond the M.A.)

36 units, including a minimum of 28 graduate units of which no more than 8 may be in 297 and, with permission of the Graduate Committee, no more than 4 in 596. Required courses are 200; and 110 or 111 or 206 or 207, or their equivalent.

Plan B (for students who have been admitted to the program leading to the Ph.D.)

Same as Plan A, except that, all 36 units must be in graduate courses.

All students should plan their programs in consultation with their Graduate Adviser. Programs should not be filed without his approval.

It is strongly urged that students in their first year of graduate study register for studies courses rather than for seminars. (Consult the quarterly brochure of the department for the list of courses available.)

The content of both studies courses and seminars will vary from quarter to quarter. These courses may, therefore, be repeated for credit.

B. Examinations:

1. Language:

Students must consult with the Graduate Adviser for Languages before taking an examination.

All candidates must pass, as early as possible and in no case later than one quarter before receiving the M.A., a reading examination in French, German, Italian, Russian, Spanish, Latin, or Greek. (This requirement must be fulfilled by the presentation of an ETS score for those languages in which ETS examinations are offered.)

2. Oral Examinations:

Plan A: The candidate must pass, ordinarily during the quarter in which he expects to receive the M.A., but in no case later than the end of his seventh quarter in residence, an oral examination of approximately one hour, in which he should expect that major authors, genres, and literary periods will be covered. A candidate whose educational objectives have changed since he was admitted to graduate study and whose record provides the justification may be permitted to take the Plan B oral examination; to do so, he must receive permission from the Graduate Committee.

Plan B: The candidate must pass, at the same point in his progress, essentially the same kind of oral examination as that described above, except that, since it will serve as the first qualifying examination for the Ph.D., it will be more extensive; it will last approximately two hours.

The examining committee will make one of the following judgments: (1) Fail; (2) Pass as M.A. candidate, but without permission to continue; (3) Pass, with permission to continue. In all cases, recommendations are reviewed by the Graduate Committee.

Students must consult their Graduate Adviser before requesting any qualifying oral examination.

II. Requirements for the Degree of Doctor of Philosophy:

A. Completion of the M.A. degree under Plan B.

Candidates who enter with M.A. degrees from other institutions must pass the first qualifying oral examination (described above, under Oral Examinations, Plan B); they may request the examination as early as their first quarter in residence, but in no case later than the end of their first year. A student entering with an M.A. degree from another institution must supply an ETS score or submit to re-examination no later than one quarter before requesting the first qualifying examination.

B. Courses:

Two two-quarter seminars are to be taken between the first and second qualifying examination (the student is also encouraged to take other courses in his areas of concentration). Students working toward the second qualifying examination may offer no more than eight units of 596, to be approved by the Graduate Committee.

C. Examinations:

1. Language:

Students must consult with the Graduate Adviser for Languages before taking an examination.

Before being advanced to candidacy, the student must fulfill either language option (a) or language option (b).

Language option (a):

An examination testing the student's ability to read a plain prose test in any three of the following languages: French, German, Italian, Russian, Spanish, Latin, Greek, and Old English. (Another language may be substituted with the consent of the Graduate Committee and the Graduate Dean. In the case of Old English, two quarters of course work with a grade of *B* or better may substitute for the examination.) After such an examination, the student will be expected to demonstrate an advanced knowledge of one of these languages, based on an acquaintance with a major literary text or group of texts in the original. This requirement may be satisfied by passing within five years prior to advancement to candidacy, with a grade of *B* or better, an upper division or graduate literature course in the language, or by passing a special examination. (In the case of Old English, a third quarter's work, with a grade of *B* or better, will satisfy the requirement. The student must satisfy the language requirement before he takes the second qualifying oral examination.)

Language option (b):

A demonstration of advanced knowledge of two languages (one of which may be Old English if the Graduate Committee consents). These languages shall have some relevance to a proposed course of doctoral study. Advanced knowledge will be demonstrated as in language option (a).

In certain cases, with the advice of the Graduate Adviser for Languages and the approval of the Graduate Committee, a student who can read one foreign language fluently will be permitted to satisfy the language requirement by demonstrating his ability to translate and interpret a wide range of literary texts in that language. A written examination will normally be required.

2. Oral Examination:

The second qualifying examination, of approximately two hours, will cover three areas of concentration: periods (e.g., the eighteenth century), individual authors (e.g., Shakespeare), or special topics (e.g., theories of poetry). After consultation with the Ph.D. Adviser, the candidate must submit his list—at least one quarter before he requests examination—for the approval of the Graduate Committee. All candidates should take this examination no later than the end of their fourth year of residence.

D. The Dissertation:

After passing the second qualifying examination—or before, if it is possible and practicable—each candidate must submit, for the approval of the examining committee, a proposal for a dissertation. When approval has been granted, he will write the dissertation under the guidance of the committee. If the committee so recommends, he must defend his completed work in a further oral examination.

TEACHING CREDENTIALS

Either a major or a minor in English may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California.

For the various teaching credentials, requirements in addition to the major specified above are as follows: (1) Elementary: 106G; (2) Secondary: 106G; 110 for those students who have a major in English; (3) Junior College: M.A. (Plan A) including 110. Students planning to enter a credential program should consult with designated advisers in the Department of English and the Graduate School of Education.

ENGLISH

Lower Division Courses

1A–1B. First Year Reading and Composition. (4–4) I, II, III.

Prerequisite: satisfaction of Subject A requirement. English 1A–1B or equivalent are prerequisite to all other courses in English.

Intensive reading in, and writing about, selected literary works. Short stories and novels are read in 1A, poetry and drama in 1B.

20. The Literature of the Renaissance. (4) I, II, III.

A survey of English literature of the period 1500–1660, excluding Shakespeare and Milton. For English majors. English 20 should normally be taken before English 30 and 40.

30. The Literature of the Restoration and Eighteenth Century. (4) I, II, III.

A survey of English literature of the period 1660–1800. For English majors. English 30 should normally follow English 20 and precede English 40.

35. Introduction to the Study of Poetry. (4) I, II, III.

36. Introduction to the Novel. (4) I, II, III.

37. Introduction to Drama. (4) I, II, III.

38. World Literature—Ancient. (3) (SS. Only)

Close reading in translation of selected authors, such as Homer, the Greek dramatists, Plato, Virgil. Satisfies English major requirement in Classics.

39. World Literature—Medieval through Eighteenth Century. (4)

Reading in translation, of selected authors such as Dante, Cervantes, Montaigne, Voltaire.

40. The Literature of the Nineteenth Century. (4) I, II, III.

A survey of English literature of the period 1800–1900. For English majors. English 40 should normally be taken after English 20 and 30.

41. Creative Writing. (4) I, II, III.

Writing in forms chosen by the student, such as short story, poetry, one-act play, autobiography, and essay. May be repeated once for credit.

46A–46B–46C. Survey of English Literature. (4–4–4)

For minors and other non-majors. Not to be counted toward English major.

46A. I. Chaucer to 1660.

46B. II. Restoration and Eighteenth Century, including Milton.

46C. III. Nineteenth and Twentieth Centuries. (46B is not prerequisite to 46C.)

48. Modern Continental Literature. (4) I, II, III.

Reading, in translation, of selected modern authors such as Flaubert, Tolstoy, Dostoevsky, Proust, Valery, Rilke, Kafka, Lorca.

Upper Division Courses

102A–102B–102C. Major British Writers. (4–4–4)

For upper division minors and other non-majors. Not to be counted toward the English major.

102A. I. Chaucer through Milton.

102B. II. Dryden through Keats. (102A is not prerequisite to 102B.)

102C. III. Tennyson to the present. (102B is not prerequisite to 102C.)

103. Writing of Fiction. (4) I, II, III.

Prerequisite: consent of instructor. May be repeated for credit up to 12 units.

104. Writing of Verse. (4) I, II, III.

Prerequisite: consent of instructor. May be repeated for credit up to 12 units.

105. Creative Writing. (4) I, II, III.

All forms. Prerequisite: consent of instructor. May be repeated for credit up to 12 units.

106G. Writing of Non-Fictional Prose. (4) I, II, III.

Required of candidates for the Elementary and Secondary teaching credential in order to satisfy the State requirement of an upper division expository writing course. Under certain circumstances, students may be exempted from the course requirement by taking an examination. Other substitutes for this course must be approved by the English Department credential adviser. May not be counted toward the English major.

Non-Letters and Science Course

107. Practical Criticism. (4)

Prerequisite: 24 units in English; English major or minor.

A combined writing and criticism course for advanced students of literature and prospective English teachers; special attention given to teaching others to write.

Required for credential candidates with English majors.

110. The Structure of Modern English. (4) I, II, III.

Introduction to applied English linguistics. Sounds, forms, syntax, and vocabulary of contemporary Standard American English. Applications of linguistic theory to the teaching of composition and literature.

111. The History of the English Language. (4) I, II, III.

The structure and vocabulary of English from its earliest recorded forms to the present.

113. Literary Theory and Criticism. (4) I, II, III.

Exploration of the critic's methods and objectives; study of selected major critical documents from Aristotle to the present.

115. Medieval Literature. (4) I, II, III.

The development of literary form and idiom in England through the 15th century (exclusive of *Troilus and Criseyde* and *Canterbury Tales*).

116. The English Bible as Literature. (3) I, II, III.

117A. Shakespeare, Poems and Earlier Plays. (4) I, II, III.

Major poems and plays of Shakespeare written, acted, or published during the period 1593–1602, including *Hamlet.*

117B. Shakespeare, Later Plays. (4) I, II, III.

Prerequisite: 117A.

Major works of Shakespeare from 1603–1613.

117C. Shakespeare, Advanced Studies. (4) III.

Prerequisite: 117A–B.

Also offered for 3 units, with no prerequisite, as a field course in England in conjunction with Dramatic Arts 117. It may then be used towards satisfying the departmental requirement for majors.

117E. Shakespeare. (4) I, II, III.

For minors and other non-majors.

120. Modern Drama. (4) I, II, III.

European and American drama from Ibsen to the present.

124. Readings in the Modern Short Story. (4) I, II, III.

125. Eighteenth-Century Fiction. (4) I, II, III.

Such writers as Defoe, Richardson, Fielding, Smollett, Sterne.

126. Nineteenth-Century Fiction. (4) I, II, III.

Such writers as Jane Austen, Emily Bronte, Dickens, Thackeray, Trollope, Hardy, George Eliot.

130. Survey of American Literature. (4) I, II, III.

Such writers as Hawthorne, Emerson, Melville, Whitman, Henry James.

135. The Puritan Tradition in American Literature. (4)

The development of the main ideas of American Puritanism.

136. American Prose Until 1900. (4) I, II, III.

Such writers as Mather, Edwards, Emerson, Thoreau, Henry Adams.

137. American Verse Until 1900. (4) I, II, III.

Poets such as Taylor, Bryant, Whittier, Longfellow, Poe, Emerson, Whitman, Emily Dickinson.

138. American Fiction Until 1900. (4) I, II, III.

Such writers as Cooper, Hawthorne, Melville, Poe, Mark Twain, Henry James.

139. American Fiction Since 1900. (4) I, II, III.

Such writers as Faulkner, Hemingway, Norris, Dreiser, Crane.

142. Dante in English Translation. (4) I, II, III.

Reading of the *Divine Comedy.*

146. Renaissance. (4) I, II, III.

A survey of the literature and social background of England between 1500 and 1660.

147. British Fiction Since 1900. (4) I, II, III.

Such writers as Conrad, Bennett, Joyce, Lawrence, Forster, Virginia Woolf.

148. The Flaubertian Tradition in Fiction. (4) I, II, III.

Ford Madox Ford, James Joyce, Samuel Beckett and others.

151. Senior Studies. (4) I, II, III.

Designed primarily for seniors whose major subject is English, but open to qualified upperclassmen in other majors. (151A–B, Modern Verse; 151D, Donne and Jonson; 151DL, Descriptive Linguistics; 151Dr, Dryden; 151F, Faulkner; 151HE, Hemingway; 151J, Samuel Johnson; 151Ja, Henry James; 151L, Lawrence; 151P, Pope; 151PL, Politics in the English Novel; 151RF, Richardson and Fielding; 151S, Spenser; 151Sw, Swift; 151Sy, The Symbolist Movement; 151W, Wordsworth; 151Y, Yeats)

152A. Chaucer: Canterbury Tales. (3) I, II, III.

152B. Chaucer: Troilus and Criseyde and the Minor Poems. (3) I, II, III.

153. Yeats, Pound, Eliot. (4) I, II, III.

154A. British and American Verse Since 1900. (4) I, II, III.
Hardy, Yeats, Bridges, and more recent poets writing in traditional forms.

154B. British and American Verse Since 1900. (4) I, II, III.
Pound, Eliot, Williams, and the more experimental writers of the period.

156. Medieval and Tudor Drama. (4)
English drama from its beginnings to the end of the Sixteenth Century, excluding Shakespeare.

157. Stuart Drama. (4)
English drama, excluding Shakespeare, from the end of the Sixteenth Century to the closing of the Theaters (1642).

158. Prose of the English Renaissance. (4) I, II, III.
Major prose writers of the 16th and 17th centuries.

159. Tudor Verse. (4) I, II, III.
Non-dramatic verse of such writers as Skelton, Wyatt, Spenser, Shakespeare, Marlowe, Donne, Jonson.

160. Stuart Verse. (4) I, II, III.
The song writers, the metaphysicals, the Cavaliers.

162. Milton. (4) I, II, III.

168. Restoration and Eighteenth-Century Prose. (4) I, II, III.
Such writers as Dryden, Addison, Steele, Swift, Johnson.

169. Restoration and Eighteenth-Century Drama. (4) I, II, III.
Such dramatists as Dryden, Etherege, Wycherley, Congreve, Sheridan.

170. The Age of Satire. (4) I, II, III.
Donne, Rochester, Dryden, Swift, Pope, Johnson.

171. Restoration and Eighteenth-Century Verse. (4) I, II, III.
Such poets as Dryden, Pope, Johnson, Cowper, Burns, Blake, Crabbe.

178. Nineteenth-Century Prose. (4) I, II, III.
Romantic and Victorian writers, such as Coleridge, Hazlitt, Arnold, Carlyle.

179. Romantic Poetry. (4) I, II, III.
Such poets as Wordsworth, Coleridge, Byron, Shelley, Keats.

180. Victorian Poetry. (4) I, II, III.
Such poets as Tennyson, Browning, Arnold, Hopkins.

183. Poetry and Song. (3).
Prerequisite: consent of instructor.

184. Studies in Modern European Literature. (3) I, II, III.
The mood of writers like Kafka and Camus is traced back by way of Proust to its beginnings in the nineteenth century, especially to its first statement in the writings of Dostoyevsky.

185A–B–C. Seminar in Modern European Literature. (3–3)
Prerequisite: consent of instructor.

Close study of a major modern European author in translation. Subject will vary with instructor.

Three-quarter seminar; *all three quarters required.*

190. Ethnic Literature. (4)
Writings in English by natives of such countries as India and Ghana, and by American Negroes, Indians, and Mexican-Americans.

191. Literature and the Black American. (4)
The study of literary works dealing with American Negroes.

194. Group Studies for Advanced Students. (2–4)
Prerequisites: upper division standing, consent of the instructor and the Department Chairman.

Designed to meet special curricular problems. May be repeated once for elective credit in the major.

197. Senior Seminar. (4)
Prerequisite: senior standing.

An undergraduate seminar limited to senior English majors or juniors with consent of the instructor. Content will vary with each instructor. One quarter is required; may be repeated once for additional credit.

199. Independent Studies in English. (1–5) I, II, III.
Reading and conference for seniors of high scholastic standing. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200. Methods of Literary Study. (4) I, II, III.
(formerly 208)

201. Literary Criticism: Plato to Jonson. (3) I, II, III.
(formerly 217)

202. Literary Criticism: Dryden to the Present. (3) I, II, III.
201 is not prerequisite to 202.
(formerly 217)

203. Creative Writing. (4) I, II, III.
(formerly 216)
Prerequisite: Consent of instructor.

205A. Old English. (4) I, II, III.
Introduction to the language and prose.

205B. Old English. (4) I, II, III.
Shorter poems and Introduction to *Beowulf.*
205A prerequisite to 205B.

205C. Old English. (4) I, II, III.
Completion of *Beowulf*.
205A–B prerequisite to 205C.

206. The History of the English Language. (4) I, II, III.
(formerly 220)

207. The Structure of the English Language. (4) I, II, III.
(formerly 220)

Content of "Studies" courses and Seminars will vary from quarter to quarter, and these courses may be repeated for credit with the consent of the chairman of the departmental graduate committee.

230. Studies in Medieval Literature. (4) I, II, III.

231. Studies in Renaissance Literature. (4) I, II, III.

232. Studies in Restoration and Eighteenth-Century Literature. (4) I, II, III.

233. Studies in Nineteenth-Century Literature. (4) I, II, III.

234. Studies in Twentieth-Century Literature. (4) I, II, III.

235. Studies in American Literature. (4) I, II, III.

236. Studies in Literary Criticism. (4) I, II, III.

260. Seminar in Medieval Literature. (4) I, II, III.

261. Seminar in Renaissance Literature. (4) I, II, III.

262. Seminar in Restoration and Eighteenth-Century Literature. (4) I, II, III.

263. Seminar in Nineteenth-Century Literature. (4) I, II, III.

264. Seminar in Twentieth-Century Literature. (4) I, II, III.

265. Seminar in American Literature. (4) I, II, III.

270. Seminar in Poetry. (4) I, II, III.

271. Seminar in Drama. (4) I, II, III.

272. Seminar in Fiction. (4) I, II, III.

273. Seminar in Literary Criticism. (4) I, II, III.

297. Graduate Studies. (1–4)
Graduate credit given for an upper division course with additional work at the graduate level.

596AA–596ZZ. Directed Reading and Research. (1–4)
Individual tutorial. A written proposal for each tutorial must be approved by the Department Chairman and filed with the Graduate Division.

597. Individual Study for Master's Comprehensive and Ph.D. Examinations. (1–12)
Maximum of 12 units per quarter. Satisfactory/Unsatisfactory grade. Instructor should be the student's major professor or the chairman of his doctoral committee. No unit credit allowed toward advanced degree(s). Enrollment limited to 24 units per examination.

599AA–599ZZ. Dissertation Research and Preparation. (1–6)
Only for research underlying the dissertation; writing the dissertation.

Related Courses in Another Department

Education SE 390. Curriculum and Instructional Procedures and Materials Used in Teaching English in the Secondary School. (4)

Education SE 392A–B–C–D. Student Teaching: English. (4–4–4–4)
Prerequisite: Education SE 290 and admission to student teaching.

Education SE 393. Problems Seminar in Teaching of English. (1) I, II, III.
Prerequisite: Education SE 290.

Education SE 394. Current Trends in the Teaching of English. (4)
Seminar, limited to experienced teachers of English, aiming to reassess the goals and methods for the teaching of English.

ENVIRONMENTAL STUDIES

Committee in charge

Preston E. Cloud, Jr., Ph.D., *Professor of Geology.*
Joseph H. Connell, Ph.D., *Professor of Zoology.*
John C. Crowell, Ph.D., Sc.D., *Professor of Geology (Co-Chairman of the Committee).*
Richard M. Martin, Ph.D., *Assistant Professor of Chemistry.*
Peter Mason, Ph.D., *Assistant Professor of Geography.*
Walter J. Mead, Ph.D., *Professor of Economics.*
Roderick Nash, Ph.D., *Associate Professor of History (Co-chairman of the Committee).*
Andrew Winnick, Ph.D., *Assistant Professor of Economics (Fall Quarter).*

INTERDEPARTMENTAL MAJOR

Environmental Studies offers direction to students interested in the total environment and its management. The major is designed to give the student a knowledge of the characteristics of the environment and the working approaches to the solution of environmental problems. An Environmental Studies major may be useful as preparation for careers in government, law, business, journalism, and elementary or secondary teaching. The major is not intended to equip undergraduates for graduate study. Students desiring graduate work in the sciences or social sciences should be aware of the admission requirements of graduate programs and the necessity of early planning to meet them.

Preparation for the Major

Required: Environmental Studies 1, 2, 3, 4, 5, 6, and any introductory course in statistics. Env S 1, 2 and 3 will normally be taken in the first year; and Env S 4, 5 and 6 in the second.

Other courses may be approved as substitutes upon application to the Committee.

The Major

Required: Environmental Studies 197 A–B; Geography 160 *or* 161 *or* 162 *or* Mechanical Engineering 110; History 173C; Political Science 175; Economics 115; Geology 106; Chemistry 101; Biology 153 *or* 123 *or* 124. Other courses may be approved as substitutes upon application to the committee.

Also required is a concentration of 20 upper division units in a department of the College of Letters and Science, 10 units of which should be completed by the end of the junior year. Early choice of concentration, in consultation with the appropriate departmental representative, is essential. Upper division courses required for the major will count toward this requirement.

The Minor

Required: 30 units including 15 units from Environmental Studies 1 through 6.

Lower Division Courses

1. Introductory Physical Environment. (5) I. Mr. Martin

Lecture, four hours; discussion, one hour. An introduction to the characteristics and problems of the physical environment.

2. Introductory Biological Environment. (5) II. The Staff

Prerequisite: ENV S 1 or consent of Committee.

Lecture, four hours; laboratory, one hour. An introduction to the characteristics and problems of the biological environment.

3. Introductory Social Environment. (5) III. Mr. Nash

Prerequisite: ENV S 1 and 2 strongly recommended.

Lecture, three hours; discussion, two hours. An introduction to the characteristics and problems of the social environment.

4. Intermediate Social Environment. (5) I. Mr. Nash

Prerequisite: ENV S 3 or consent of Committee. ENV S 1 and 2 strongly recommended.

Lecture, three hours; discussion, two hours. Continued investigation of the characteristics and problems of the social environment.

5. Intermediate Physical Environment. (5) II. Mr. Crowell

Prerequisite: ENV S 1 or consent of Committee. ENV S 2, 3 and 4 strongly recommended.

Lecture, four hours; discussion, one hour. Continued investigation of the characteristics and problems of the physical environment.

6. Intermediate Biological Environment. (5) III. The Staff

Prerequisite: ENV S 1 and 2 or consent of Committee. ENV S 3, 4, and 5 strongly recommended.

Lecture, four hours; laboratory, one hour. Continued investigation of the characteristics and problems of the biological environment.

Upper Division Courses

197A–B. Senior Seminar in Environmental Studies. (4–4) I, II, III. The Staff

Prerequisite: En v S 1–6 and 18 required upper division units in the ENV major or consent of instructor Seminar, three hours.

An interdisciplinary problem-oriented research seminar for seniors majoring in Environmental Studies. Preparation of an extensive paper, integrating knowledge acquired in the major, will be required.

ERGONOMICS AND PHYSICAL EDUCATION

Rowand R. J. Chaffee, Ph.D., *Professor of Ergonomics and Physical Education (Chairman of Department).*
Hugo Chiodi, M.D., Ph.D., *Professor of Ergonomics and Physical Education.*
Theodore Harder, Ed.D., *Professor of Ergonomics and Physical Education, Emeritus.*
Jean Hodgkins, Ed.D., *Professor of Ergonomics and Physical Education, Emeritus.*
Steven M. Horvath, Ph.D., *Professor of Ergonomics and Physical Education.*
Joseph E. Lantagne, Ed.D., *Professor of Ergonomics and Physical Education.*
Ernest D. Michael, Ph.D., *Professor of Ergonomics and Physical Education.*
Rene H. Rochelle, Ph.D., *Professor of Ergonomics and Physical Education.*
Elvera Skubic, Ph.D., *Professor of Ergonomics and Physical Education.*
Marian H. Anderson, M.S., *Professor of Ergonomics and Physical Education, Emeritus.*
Gladys R. Van Fossen, M.A., *Professor of Ergonomics and Physical Education, Emeritus.*
Marilyn Flint, Ph.D., *Associate Professor of Ergonomics and Physical Education.*
George Stelmach, Ed.D., *Assistant Professor of Ergonomics and Physical Education.*
Sidney R. Ottman, Ed.D., *Lecturer in Ergonomics and Physical Education.*

Ergonomics and Physical Education is a discipline encompassing the areas of kinesiology, physiology of exercise and work under normal and adverse environments, motor learning, psycho-social behavior, and health. Included are certain aspects of anatomy, physiology, biochemistry, psychology, and other appropriate fields. The aim of the department is to prepare a student for graduate study and research at the university and college level, teaching at all levels and consultant services.

The Major in Physical Education

Students may obtain the Bachelor of Arts degree in physical education upon completion of not less than 180 units of university work, including 36 upper division units in the major. All requirements of the College of Letters and Science and the department must be met.

Students with senior standing at the time of admission to the University must complete 36 units in residence, at least 18 of which must be in physical education.

Candidates for the major or minor are required to demonstrate that they possess a specified level of competence in theory and performance.

Preparation for the Major

Psychology 1 or 101; Sociology; Biology 1A or 20; Chemistry 1A; Physics 1, 6A or 10; Zoology 25 and 40; 6 units of Physical Activities as prescribed; Physical Education 20 and 30; and Health 40.

Physical Education majors and minors must take the PA 1–50 series of activity courses.

Requirements for the Major

Physical Education 101, 105, 110, 118, 130; Electives, 16 units as follows: A minimum of 4 units selected from PE 102, 106, 156, 158, 160; 4 units of upper division work selected from the areas of Anthropology, Biology, Psychology, Sociology, or Zoology; the remaining electives selected from PE 103, 104, 120, 122, 131, 142, 194, 197, 199 and Health 101.

Areas of Concentration

Motor Learning

Students wishing to emphasize Motor Learning in physical education must complete a major in physical education and also specific courses in the motor learning area. Complete details concerning course requirements may be obtained from the department chairman.

Physiology

Students wishing to emphasize Physiology in physical education must complete a major in physical education and also specific courses in the physiology emphasis area. Complete details concerning course requirements may be obtained from the department chairman.

Pre-Physical Therapy

The Department of Physical Education provides a program in the preparation of students for physical therapy. This program may be completed at the end of three years or it may lead to a Bachelor of Arts degree at the end of four years. An additional year in a school of physical therapy is required to become a licensed physical therapist. The program selection is based on the courses which are prerequisite to admittance in the various physical therapy schools throughout California. For further information consult the department chairman.

Requirements: Preparation for the major with an emphasis in Pre-Physical Therapy includes all courses for the physical education major. The 6 units of activities and upper division electives will be prescribed by the adviser. Additional courses required: Chemistry 1B and Psychology 103.

The Minor

Physical Education

A minimum of 30 units plus 6 units of physical activities—PA 1–50 series (see the department adviser for specific physical activity requirements); PE 20; 101, 105, and 118; and PE 130; additional units as approved by the department.

THE DEGREE OF MASTER OF ARTS

Requirements for the M.A.—(see general University and Departmental requirements).

Students will follow one of the following two plans:

Plan I: Thesis Plan—A minimum of 30 quarter units and a thesis are required. The units may be taken in graduate or upper division courses, and at least 12 will normally be in the 200 series in the major subject. Courses outside the major may be taken upon approval by the student's advisory committee. No unit credit is allowed for the thesis.

Plan II: Comprehensive Examination Plan—A minimum of 36 units of upper division and graduate courses is required, of which at least 18 units will normally be in the 200 series in the major subject. Courses outside the major may be substituted upon approval by the student's advisory committee. Satisfactory performance in a comprehensive examination and 4 units of 299 course work are required.

TEACHING CREDENTIALS

Either a major or a minor in Physical Education may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of Physical Education and the Graduate School of Education.

PHYSICAL EDUCATION

Lower Division Courses

20. Concepts of Physical Education. (3) I, II.
The Staff

An interpretation of the field designed to give the prospective major student an understanding of its scope.

30. Basic Statistics. (3) I, II. Mr. Rochelle

Lecture, 2 hours; laboratory, 2 hours.

Measures of central tendency, dispersion, and correlation. Inferential statistics, hypotheses testing, the significance of differences. Introduction to nonparametrics. Interpretation of statistical methods in the physiological and psychological areas of performance.

Upper Division Courses

101. Analysis of Movement. (4) I, II.
Miss Flint, Mr. Stelmach

Lecture, 3 hours; laboratory, 3 hours.

Prerequisite: Zoology 25 and Physics 1, 6A or 10.

Basic concepts of human movement, physical and biological principles involved, and their application to fundamental movement patterns and athletic skills.

102. Advanced Analysis of Movement. (4) III.
Mr. Stelmach

Lecture, 3 hours; laboratory, 3 hours.

Prerequisite: PE 101.

Analysis and evaluation of contemporary research in biomechanics, skill performance and related topics.

103. Kinesiotherapy. (4) I, II. Miss Flint
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: PE 101.

Pathology of handicapping conditions, variations of human structure and the role of exercise in the development and improvement of movement for the physically handicapped. Principles required for posture control and basic movement patterns. An evaluation of selected exercises.

104. Advanced Kinesiotherapy. (4) III. Miss Flint
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: PE 101 and PE 103.

Therapeutic exercise, rehabilitative techniques and developmental activities for the physically limited person. A thorough investigation of certain debilitating conditions including case histories. Visits to specialized clinics and rehabilitation centers.

105. Physiology of Exercise. (4) II, III. Mr. Michael
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: Biology 1A; Chemistry 1A; Zoology 40.

Response of organs and systems to exercise; the response of ventilation, heart rate, and peripheral blood flow to exercise, metabolism and exercise, oxygen uptake and oxygen debt parameters.

106. Advanced Physiology of Exercise. (4) I. Mr. Michael
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: Physical Education 105 or consent of instructor.

Sources of energy for exercise; diet and body composition; energy balance; respiratory and metabolic changes with exercise.

110. Neuromuscular Physiology. (4) II. Mr. Chaffee
Lecture, 4 hours.
Prerequisite: Chemistry 1A; Biology 1A; Zoology 25 and Zoology 40.

Biochemical and cellular-physiological aspects of muscle and nerve cell function; and the function of the central and autonomic nervous system and other selected organ systems associated with motor performance.

118. Perceptual Motor Learning. (4) I, III. Miss Skubic
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: PE110, Psychology 1 or 101.

Sensory, cognitive and motor processes involved in motor learning; perceptual motor dysfunction; environmental and instructional factors influencing the learning situation.

120. Measurement and Evaluation. (3) I, II. Mr. Rochelle
Lecture, 2 hours; laboratory, 3 hours.

Prerequisite: PE 30.

Criteria for test selection. validity, reliability. Item analysis, test construction and analysis of tests of strength, physique and nutritional status, motor ability, motor fitness, cardiovascular fitness and sports skills.

122. Statistical Procedures and Experimental Design. (3) III. Mr. Rochelle
Lecture, 2 hours; laboratory, 2 hours.
Prerequisite: PE 30.

Review of basic statistics, analysis of variance, probability theory, factorial designs, and distribution-free statistics. Introduction to computer programming.

130. The Cultural Bases of Kinesiological Science. (4) I, II. The Staff
Lecture, 4 hours.
Prerequisite: PE 20.

The philosophical and sociological foundations of kinesiological science. An examination of principles of natural and behavioral science as determinants of current beliefs and practices. Social variables which affect and are affected by individuals and groups as they engage in movement.

131. Administration of Physical Education. (4) III. The Staff
Prerequisite: Physical Education 130.

Organization and administration of physical education.

142. Leisure and Society. (4) I, II, III. The Staff
Lecture, 3 hours; discussion, 1 hour.
Prerequisite: Sociology 1 or 101.

A study of the role of leisure in society. Causal factors of the increase in leisure in the United States; implications of automation. Urgency of the need for widespread recognition of the potential problems involved.

156. Cardiorespiratory Physiology of Performance. (4) II. Mr. Rochelle
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: PE 105 and 110 or consent of instructor.

Function and regulation of the circulation, heart, vascular bed, dynamics of the circulation, reflexes and blood as a tissue.

158. Physiological Adjustment to Work and Environmental Stress. (4) III. Dr. Chiodi
Lecture, 4 hours.
Prerequisite: PE 105, 110 and 156.

Interrelations of the reactions and adjustments made by the working man to the usual stressful states to include temperature and humidity alterations, altitude and underwater living and also to the newer environmental stressors, such as air pollution, and urban living.

160. Perceptual Motor Performance. (4) II. Miss Skubic
Lecture, 3 hours; laboratory, 3 hours.
Prerequisite: PE 118 or consent of instructor.

Individual variables involved in highly skilled performance such as personality, physique, intelligence, emotion, pain tolerance and motivation; psycho-social influences in sport psychology.

194. Individual and Group Studies. (1–4) I, II, III. The Staff
Prerequisite: Consent of instructor.

A critical review of research in selected areas.

197. Senior Seminar. (3) I, II. III. The Staff
Prerequisite: qualified senior students and consent of instructor.

A study of the current literature of the field.

199. Independent Studies in Physical Education. (1–5) I, II, III. The Staff

Prerequisite: only students in senior standing.

Study of special problems in physical education or recreation. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

201. The Secondary School Curriculum in Physical Education. (4) I. The Staff

A study of the physical education programs in American schools with an emphasis on the analysis and observation of the various types of programs at the secondary level.

204. Mechanisms of Motor Response. (4) III. Mr. Stelmach

Prerequisite: PE 118 or consent of the instructor.

A specialized seminar on response organization, storage and retrieval mechanisms, closed-loop theory and cybernetics as they relate to human performance.

206. Seminar in Work Physiology. (4) III. Mr. Michael

Prerequisite: Consent of the instructor.

Physical growth and development of skeletal and muscular systems. Effects of exercise on adaptation to stress. Metabolic costs of work and energy balance. Training and fatigue, evaluation of work capacity.

207. Environmental Physiology. (4) III. Mr. Chiodi

Prerequisite: consent of instructor.

The physical, chemical, and biotic influences of the environment on man, and the adaptive changes in response to environment.

218. Physiology of Aging. (4) II. Mr. Horvath

Prerequisite: consent of instructor.

Physiological alterations occurring consequent to the aging processes. A study of the changes which occur in the human organism from the moment of birth, through the developmental years to maturity and to biological senescence, with sociological and psychological correlates.

235. Design and Statistical Analysis. (4) III. Mr. Rochelle

Lecture, 3 hours; laboratory, 3 hours.

Prerequisite: Physical Education 30 or consent of instructor.

Application of statistical methods to research in the physiology and psychology of human performance. Includes analysis of variance, latin square design, regression and distribution free statistics.

250. Philosophies of Ergonomics. (4) III. The Staff

Prerequisite: Physical Education 130.

An examination of philosophical thinking in the field, the early historical thought that influenced current beliefs, and implications for the future. The formulation of a professional philosophy by the student.

252. Critical Issues in Health, Physical Education and Recreation. (4) II. The Staff

Current problems, trends, and research in health, physical education, and recreation; their scope and implications.

259. Seminar in Human Factors Research. (1) II. The Staff

Prerequisite: Consent of the instructor.

An examination of instrumentation, analysis and interpretation of current human factors research.

260. Seminar in Contemporary Research. (1) III. Mr. Chaffee

Presentation and exchange of ideas by faculty and students of current research.

276. Fundamentals of Research. (4) I. The Staff

Prerequisite: Physical Education 30.

A review of the research literature in ergonomics; an analysis of research methods used.

280. Motor Learning and Performance. (4) II. Miss Skubic

Prerequisite: Physical Education 118, or consent of instructor.

A critical examination of research in the area of motor learning. Environmental, physiological and psychological factors influencing the learning and performance of motor skills; perceptual-motor dysfunction.

594A–B–C–D. Directed Research. (1–6) I, II, III. The Staff

Related Courses in Another Department

Education P 190. Curriculum and Instructional Procedures and Materials Used in the Teaching of Physical Education. (3) I, II, III. The Staff

Prerequisite: Senior standing; and major or minor in physical education.

Procedures, materials, methods and techniques of teaching physical education. Program planning and organization of physical education and athletic programs at the secondary level with observation in the elementary and secondary schools.

Education P 292A–B–C–D. Student Teaching: Physical Education. (3–3–3–3) I, II, III. The Staff

Prerequisite: Major or minor in physcial education: Education P 190.

Teaching practice and class management under the supervision of master teachers and University supervisors.

Education P 293A–B. Seminar in Student Teaching: Physical Education. (1–1) I, II, III. The Staff

To be taken concurrently with Education P 192A–B–C–D.

HEALTH

Lower Division Course

40. Concepts of Health. (4) I, III. The Staff

Analysis of major factors influencing the health of individuals and groups, including heredity and reproduction, nutrition, exercise and rest, mental hygiene, control of disease and environmental hazards, evaluation of health information and medical care.

Upper Division Courses

100. History and Science of Health and Disease. (4) II. The Staff

History of health and preventive medicine. Modern contributions to health from the sciences.

101. Health in the Twentieth Century. (4) II. Mr. Lantagne

Prerequisite: Health 40.

An analysis of the causes of morbidity and mortality in the United States. Special consideration of the interactions of the behavioral sciences, medicine and education to the improvement of health.

105. Public Safety and Accident Prevention. (3) I. The Staff

An analysis of causes of types of accidents and research supporting their prevention. Emphasis to be placed on the interaction among physiological, psychlogical, and sociological factors relating to accidents.

106. Occupational and Industrial Health. (3) I. The Staff

A survey of recent research and analysis of the factors affecting the health, efficiency, and welfare of workers. Includes specific diseases and disabilities with their contributory conditions, the administration of industrial health programs, and legal aspects of employee health and safety.

107. Community Health Agencies. (3) II. Mr. Lantagne

An analysis of community agencies supported by public and private funds which are concerned with the health and welfare of the population of the United States.

108. Marriage and Parenthood. (4) I, II, III. Mr. Lantagne

Tenets underlying successful marriage, emphasizing physiological and emotional factors.

199. Independent Studies in Health Science. (1–5) I, II, III. The Staff

Open only to advanced students approved by the department chairman and faculty members involved. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

FRENCH AND ITALIAN

William F. Aggeler, Ph.D., *Professor of French, Emeritus.*
André Malécot, Ph.D., *Professor of French.*
Edmond E. Masson, Ph.D., *Professor of French.*
Mark J. Temmer, Ph.D., *Professor of French.*
Ronald W. Tobin, Ph.D., *Professor of French (Chairman of the Department).*
Philip D. Walker, Ph.D., *Professor of French.*
Robert Beachboard, Docteur de l'Université de Paris, *Associate Professor of French.*
Anne G. Cushing, Ph.D., *Associate Professor of French.*
Geneviève Delattre, Ph.D., *Associate Professor of French.*
Jack Murray, Ph.D., *Associate Professor of French.*
Alfredo A. Bonadeo, Ph.D., *Assistant Professor of Italian.*
Naomi Greene, Ph.D., *Assistant Professor of French.*
Harry Lawton, Ph.D., *Assistant Professor of Italian.*
Donald L. Maddox, Ph.D., *Assistant Professor of French.*
Jacques Malet, Ph.D., *Assistant Professor of French.*
Patrizio Rossi, Ph.D., *Assistant Professor of Italian.*
Ernest Sturm, Ph.D., *Assistant Professor of French.*
William J. Ashby, M.A., *Acting Assistant Professor of French.*
Ivan Sonier, M.A., *Acting Assistant Professor of French.*
Jacqueline Simons, *Lecturer in French (Supervisor of Teaching Assistants).*
Vincenzo De Nardo, *Lecturer in Italian.*

The Department reserves the right to place students in courses from which they can best profit. Students who have completed a more advanced course in a sequential series (e.g. French or Italian 1, 2, 3, 4, 5, 6) will not be permitted to take a course that is lower in the series. Students will not be permitted to take two courses of a sequential series concurrently. Students must complete French 26 and French 30 *prior* to taking upper division courses. Students who have completed an upper division course will not be permitted to then take a lower division course in the department, with the exception of French 18A–B. Students who possess a native command of a foreign language will not be permitted to enroll in lower division courses pertaining to that language.

Because of the highly sequential nature of lower division language courses 1 through 6, students who have received in one of these courses a grade lower than C are urged not to continue to the next higher course. Instead, they should repeat the course for no credit or provide themselves with a tutor to prepare them for the next course.

The Major in French

Preparation for the Major—Course 1, 2, 3, 4, 5, 6 and French 26, 30.

History 4A–B–C and Philosophy 20A–B–C are strongly recommended.

Students who wish to make French their major subject must have maintained at least an average grade of C in the college courses in French taken prior to their junior year. Students transferring from other institutions may be tested by examination.

Requirements for the Major—Forty upper division units in French are required. Of these twelve units must come from French 109A–B–C, the introductory Survey of French Literature, twelve units must come from *century* literature courses in the department, and sixteen units from all other courses in the 100 series, except courses in literature in translation.

Majors who go to Bordeaux under the Education Abroad Program should complete twelve units of upper division courses in the department on the Santa Barbara campus, either previous or subsequent to their study at Bordeaux.

The Minor in French

Requirements for the Minor—A minor in French requires a minimum of thirty units; of these eighteen units must be in the upper division. Twelve units of the required eighteen units of upper division work must be French 109A–B–C.

The Major in Italian

Preparation for the Major—Courses 1, 2, 3, 4, 5, 6. History 4A–B–C and Philosophy 20A–B–C are strongly recommended.

Requirements for the Major—Forty upper division units in Italian are required. Of these twenty-one units must come from Italian 101A–B–C and 109A–B–C, and nineteen units from all other courses in the 100 series, except courses in literature in translation.

The Minor in Italian

Requirements for the Minor—A minor in Italian requires a minimum of thirty units; of these eighteen units must be in the upper division.

TEACHING CREDENTIALS

A major or a minor in French or in Italian may serve as an appropriate part of the program of studies required for an elementary or secondary teaching credential in California.

The Teaching Major in French should, in so far as possible, include French 103A–B–C, Phonetics; French 126A–B, Contemporary Institutions; French 128A–B; Introduction to Stylistics; among the forty upper division units required for the major as specified above.

The Teaching Major in Italian does not differ from the regular major.

The Teaching Minor in French or in Italian requires a minimum of thirty units in the respective discipline; of these eighteen units must be in the upper division. The courses recommended for the teaching major in French are also highly recommended for the minor.

For further information concerning teaching majors or minors, the student must confer with the designated counselor in the Graduate School of Education, as well as with his adviser in French or in Italian.

FRENCH

THE DEGREE OF MASTER OF ARTS

Requirements

1. In addition to fulfilling the general requirements for admission to graduate status (see p. 30), the student must have an undergraduate major in French or its equivalent. Candidates who are deficient in this respect will take the necessary undergraduate courses to make up the deficiency before beginning work in the master's program.

2. The French Department offers the M.A. degree under Plan I (thesis) and Plan II (without thesis).

   a. Under Plan I, the student is expected to take 36 units of work; 30 units of which must be course work and 6 units of which must be thesis work. Of the 30 units of course work, 12 units must be in graduate courses.

   b. Under Plan II, the student is expected to take 36 units of course work, 24 of which must be in graduate courses.

   c. The student must satisfy the following requirements: demonstrate a knowledge of French phonetics equivalent to French 103ABC (by evidence of transcript, by taking course 103, or by special departmental examination); a knowledge of Old French Philology equivalent to French 202AB (by evidence of transcript, by taking course 202, or by special departmental examination); and a reading knowledge of one additional relevant foreign language.

   d. Courses in other departments (English, foreign language, history, philosophy, art history, music, etc.) may, with the approval of the Graduate Adviser, be counted toward the degree if they have relevance to the student's special program.

   e. All students must pass a comprehensive examination appropriate to their program.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Requirements

1. See preceding section on admission to graduate status and on general requirements concerning residence, course load requirements, foreign languages, the oral qualifying examination, and the dissertation and its defense.

2. Departmental requirements:

a. The candidate will first follow the course of study leading to the M.A. degree under Plan II, taking 36 units of course work, 24 of which must be graduate courses (i.e., "200" courses). After the completion of this program, there will be no further departmental course requirement; after consultation with his advisers, the student will take those courses recommended as useful in preparing himself for the comprehensive examination.

b. A candidate for the Ph.D degree must have completed an undergraduate major in French or an equivalent program of study. He will demonstrate proficiency in speaking and writing French. He must also satisfy the requirement in Old French Philology (by course 202AB, by evidence of transcript, or by special examination); French Phonetics (by course 103ABC, by evidence of transcript, or by special examination); and a reading knowledge of two relevant foreign languages. A background in Latin equivalent to a year course in college is strongly recommended.

c. In preparing himself for the comprehensive examination, a candidate may follow one of two plans:

Plan A, designed for those who are primarily interested in literature, requires six examinations or formal essays in French literature.

Plan B, designed for those who are interested in linguistics, philology, or phonetics. A specialist in linguistics would take examinations in Old French Philology, linguistics, French phonetics, and up to three centuries of French literature. A specialist in philology would be examined in Old French Philology, the history of a language other than French, linguistics, and up to three centuries of French literature. A specialist in phonetics would take examinations in Old French Philology, linguistics, French phonology, phonetics (physiological and acoustics), and two centuries of French literature.

d. Ordinarily, a candidate is required to serve as a Teaching Assistant for a minimum of three quarters.

"Check with the department for the latest schedule information and course prerequisites before registration."

FRENCH

Lower Division Courses

The elementary courses (IV through VI) have been divided into two tracks: the "reading track" and the "four-skill track."

The reading track: while the spoken language will be used in the reading track, the major emphasis will be upon the acquisition of reading skills. The reading track will be designated by "L," and will begin at Quarter Course IV.

The four-skill track: is designed for people who are interested in acquiring a solid oral knowledge of the language as well as a written knowedge. The department considers that a major or a minor in French should take the four-skill track.

*__1. Elementary French.__ (4) I, II. The Staff
Beginner's course.

2. Elementary French. (4) I, II, III. The Staff
(Continuation of 1.)

3. Elementary French. (4) I, II, III. The Staff
(Continuation of 2.)

4. Intermediate French. (4) I, II, III. The Staff

4R. Intermediate French. (4) I, II, III. The Staff
Emphasis upon reading skills. (Not recommended for majors, minors and those who want to continue the study of French beyond the second year.)

5. Intermediate French. (4) I, II, III. The Staff
(Continuation of 4.)

5R. Intermediate French. (4) I, II, III. The Staff
Emphasis upon reading skills. (Not recommended for majors, minors and those who want to continue the study of French beyond the second year.)

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*An intensive course in French for graduate students is also offered. See French 11.

6. Intermediate French. (4) I, II, III.
(Continuation of 5.) The Staff

6R. Intermediate French. (4) I, II, III.
The Staff

Emphasis upon reading skills. (Not recommended for majors, minors and those who want to continue the study of French beyond the second year.)

8A. French Conversation. (2) I, II, III.
Prerequisite: French 3 or equivalent. The Staff

8B. French Conversation. (2) I, II, III.
Prerequisite: French 4 or equivalent. The Staff

8C. French Conversation. (2) I, II, III.
Prerequisite: French 5 or equivalent. The Staff

11. Elementary French–Intensive Course.
(8) II. The Staff

Two hours daily, four days per week. For graduate students only. Designed to develop a reading knowledge of French for graduate language examinations.

12. Directed Readings—Intensive Course.
(4) III. The Staff

Continuation of French 11. Designed to improve students' speed in reading literature for French language examinations.

18A–B. Advanced French Conversation.
(2) I, II, III. The Staff

Prerequisite: French 26, 30 or equivalent.

18A. Political, philosophical, and sociological themes.

18B. French literature and literary criticism.

26. Introduction to French Grammar.
(3) I, II, III. The Staff

Prerequisite: French 1–6.

Designed to acquaint students with the basic tools of French grammar and to review the grammatical apparatus from a point of view approaching the philosophy of grammar.

30. Advanced Reading and Composition.
(3) I, II, III. The Staff

Prerequisite: French 26.

Training in analysis of literary texts by French critical techniques and in writing compositions.

Upper Division Courses

French 26, 30 or consent of the department.

103A–B–C. Phonetics. (3–3–3)
Yr. Mr. Malécot

Prerequisite: 103A is prerequisite to 103B; 103B is prerequisite to 103C.

Basic concepts of articulatory phonetics, phonetic transcription, and a detailed analysis of the conversational style of the Parisian professional class. Practice with recorded models in the Language Laboratory.

107A–B. Explication de Textes. (3–3) I, II, III
The Staff

A detailed study of literary structure based on analysis of short excerpts from various periods and genres.

109A–B–C. Survey of French Literature.
(4–4–4) Yr. The Staff

An introduction to French literature, spanning French literature from its medieval origins to the contemporary period.

110A–B–C. Medieval Literature. (4–4–4) Yr.
Mr. Maddox

ABC *must* be taken in sequence.

Designed to teach students how to read Old French and to introduce them to the works, authors, genres, and styles of medieval French literature.

112A–B–C–. The Nineteenth Century.
(4–4–4) Yr. Mr. Walker

A survey of French literature of the period 1800–1900 (Romanticism, the Parnassians, Realism, Naturalism, and Symbolism). Readings of such authors as Mme. de Staël, Constant, Chateaubriand, Stendhal, Lamartine, Vigny, Michelet, Balzac, Hugo, Sand, Nerval, Musset, Gautier, Leconte de Lisle, Flaubert, Baudelaire, Zola, Mallarmé, Verlaine, Corbière, Rimbaud, Laforgue.

118A–B–C. The Sixteenth Century.
(4–4–4) Yr. Mr. Sonier

An introduction to the literature of the French Renaissance. An examination of such concepts as the Renaissance, Humanism, Reformation, and the literary movements and events connected with them. A study of representative works of major literary figures of the period such as Marot, Rabelais, Des Périers, Marguerite de Navarre, Scève, Du Bellay, Ronsard, Montaigne, Du Bartas, d'Aubigné.

120A–B–C. The Seventeenth Century.
(4–4–4) Yr. Mr. Tobin, Mr. Malet

Introduction to the main authors of the seventeenth century, such as Descartes, Pascal, Théophile, La Rochefoucauld, La Fontaine, Corneille, Molière, Racine, as well as to a small number of less prominent authors of that time. Examination of the leading notions concerning the literature and art of the whole century, e.g., baroque and classicism.

121A–B–C. The Eighteenth Century.
(3–3–3) Yr. Mr. Temmer, Mr. Sturm

Development of libertine thought traced from Saint Evremond, Fontenelle and Bayle to theories of Montesquieu, Diderot, Voltaire, Rousseau, Problems of the emergence of the novel, autobiography, satire studied.

125A–B. French Culture. (4–4) I, II.
Mr. Murray

An historical, philosophical, aesthetic overview of French culture through the centuries.

126A–B. Contemporary French Institutions.
(4–4–4) I, II, III. Mr. Beachboard

Contemporary France, present institutions, and physical, economic, political aspects. Designed particularly for credential majors.

128A–B. Introduction to Stylistics. (4–4) Yr.
Mr. Masson

Comparative stylistics, French and English. Theory and practice.

131A–B–C. Twentieth Century Literature. (4–4–4) Yr. Mr. Murray, Miss Greene

An introduction to the major currents and figures in twentieth century literature. Such authors as Proust, Gide, Sartre, Malraux, Camus, Ionesco, Beckett, Genet, Apollinaire studied.

132. Contemporary French Poetry. (4) III. Mrs. Cushing

From Baudelaire to Prevert: a critical study of significant poems since 1857, against the background of Parnassian, Symbolist, Cubist and Surrealist ideas. Study of poetic materials and techniques. Several short papers, explications de texte, practice in translation.

133. Surrealist Film. (4) I, II, III. Miss Greene, Mrs. Cushing

A study of the Surrealist film of the 1920's and 1930's. Complementary Surrealist texts read. Course designed for upperclassmen and graduate students.

199. Independent Studies in French. (1–5) I, II, III. The Staff

Individual investigations in literary fields. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

201. Problems of French Linguistics. (3) Yr. The Staff

Syntactic study of French noun. Morphological study of verbs in spoken French: a structural analysis.

202A–B. Old French Philology. (3–3) A I, B II. The Staff

Prerequisite: A. one year of college Latin or equivalent or consent of instructor. B. French 202A.

Grammar of medieval dialects, intensive study of Old French as preserved in representative texts.

203. Advanced French Phonetics. (3) III. Mr. Malécot

An accelerated review of the principles covered in French 103A–B–C, but without laboratory practice. An introduction to acoustic phonetics.

204. Old French Texts. (3) III. The Staff

A study of texts to the Fifteenth Century.

205. Bibliography and Research Techniques. (1) I. Mr. Walker

A brief introduction to bibliographical theory and practice, the principle bibliographies and other sources of information useful for the study of French literature, and ways of obtaining different types of information having to do with French literature. Recommended for all graduate students concerned with, or specializing in, French literature.

206. Studies in Medieval Literature. (3–15) I, II, III. Mr. Maddox

Old French Epic, French Chronicles & Chroniclers, Chrétien de Troyes, Early French & Provençal Poetry, Romance of the Rose & Allegorical Poetry, Manuscript Studies. May be repeated for a maximum of eighteen units.

207A. Physiological Phonetics. (3) I, II, III. The Staff

Prerequisite: French 103A or equivalent.

Anatomy of larynx, buccal and nasal passages, respiratory system; analysis of role of these systems in the analysis of speech; survey of research results in physiological phonetics; bibliography; individual projects.

207B. Acoustic Phonetics. (3) II. The Staff

Prerequisite: French 103A or equivalent.

Introduction to acoustics, spectrographic analysis, speech synthesis, manipulation of real speech, bibliography, application of above to the analysis of speech samples.

207C. Descriptive Phonetics. (3) III. The Staff

Prerequisite: French 103A or equivalent.

A detailed analysis of current trends in French pronunciation, research methods and results, bibliography, individual projects. Two hours per week of class and one hour of laboratory.

209A–B. Linguistics. (3–3) I, II. Mr. Malécot

A brief history of linguistics followed by a more detailed analysis of the contributions of De Saussure, Martinet, Dubois, and Ruwet. Practice in applying various methods of analysis to French sentences.

212. Studies in the Nineteenth Century. (3–15) The Staff

Study in depth of selected texts of the nineteenth century with emphasis on A. Balzac, B. Stendhal, C. Flaubert, D–1. Zola, D–2. Zola, E. Romantic Poetry, F. Baudelaire, G. Symbolism, H. Literature of the Second Empire, I. Theater.

This course may be repeated for a maximum of thirty units.

218. Studies in the Sixteenth Century. (3–12). The Staff

A. Rabelais, B. Pléiade, C. Montaigne, D. French Renaissance Theatre.

This course may be repeated for a maximum of 12 units.

220. Studies in the Seventeenth Century. (3–15). The Staff

A. Corneille, B–1. Racine, B–2. Racine, C. Molière, D. Pascal, E. LaFontaine, F. Moralistes, G. Classical Hero, H. The Baroque.

This course may be repeated for a maximum of twenty-seven units.

221. Studies in the Eighteenth Century. (3–15). The Staff

A. Voltaire, B. Diderot, C. Rousseau, D. Rousseau, E. The Novel, F. Political Thought in Belletristic Literature, G. Utopia in the *Siecle des Lumieres.*

This course may be repeated for a maximum of twenty-one units.

231. Studies in the Twentieth Century. (3–15). The Staff

A–1. Proust, A–2. Proust, B. Gide, C. Apollinaire, D–1. Existentialism, D–2. Existentialism, F. Theatre, G. Essay, H. Surrealism, I. Mallarmé-Valery, J. Contemporary Criticism.

May be repeated for a maximum of twenty-seven units.

232A–B. French Literary Criticism. (3) I, II, III. The Staff
An examination of the history of French literary criticism and an inquiry into the different approaches employed by contemporary critics.

ITALIAN

Lower Division Courses

***1. Elementary Italian.** (4) I, II. The Staff
Beginner's course.

2. Elementary Italian. (4) I, II, III. The Staff
(Continuation of 1.)

3. Elementary Italian. (4) I, II, III. The Staff
(Continuation of 2.)

4. Intermediate Italian. (4) I, II, III. The Staff
(Continuation of 3.)

5. Intermediate Italian. (4) I, II, III. The Staff
(Continuation of 4.)

6. Intermediate Italian. (4) II, III. The Staff
(Continuation of 5.)

8A–B–C. Italian Conversation. (2) I, II, III. The Staff
Prerequisite: Italian 3 or consent of the instructor.

11. Intensive Italian. A–B. (4–4) I, II. Mr. De Nardo
Intensive course designed primarily for graduate students. The course will stress translation of Italian literary texts.

15A–B–C. Elementary Italian—Intensive Course. (8–8–8) Yr. The Staff
Series equivalent to the two year series of Italian 1 through 6. Meets four times a week in two-hour periods. Open to undergraduate, as well as to graduate students.

Upper Division Courses

Italian 6 or consent of the department.

101A–B–C. Conversation and Composition. (3–3–3) I, II, III. Mr. Rossi
Original composition; translation, discussion of selected passages from Italian literature.

109A–B–C. Survey of Italian Literature. (4–4–4) Yr. Mr. Rossi
Survey of Italian literature from the early authors of the thirteenth century to the contemporary writers. Discussion of all major authors and cultural currents.

110A–B–C. Dante: La Divina Commedia. (4–4–4) Yr. Mr. Bonadeo
Dante's The Divine Comedy: Inferno, Purgatory, and Paradise studied in their broad historical and moral contexts based on a close reading of the text.

111A–B–C. Trecento—Fourteenth Century Italian Literature. (4) I, II, III. Mr. Bonadeo
The literature of the Italian Middle Ages: Dante, Petrarch, and Boccaccio.

112A–B–C. Masterworks of the Italian Renaissance. (4–4–4) Yr. Mr. Bonadeo
Readings in depth from major authors of the fifteenth and sixteenth centuries such as Machiavelli, Ariosto, Castiglione, and Tasso.

115A–B–C. Italian Literature of the Nineteenth Century. (4–4–4) Yr. Mr. Lawton
Covers the various currents of Italian Romanticism from the early romantics (Foscolo, Leopardi, Manzoni) to the poetry of the end of the century represented by poets such as Pascoli and D'Annunzio. Genres include fiction, poetry and autobiography.

117A–B–C. Contemporary Italian Literature. (4–4–4) I, II, III. The Staff
Introduction to the main authors of the twentieth century such as Pirandello, Sevevo, Parvese, Ungaretti, Montale, Quasimodo, and Tomasi di Lampedusa. Theatre of the twentieth century covered the first quarter, poetry the second, and the novel the third quarter. Philosophical and cultural trends covered.

120. The New Novel in Italy. (4) I, II, III. The Staff
Reading and interpretation of modern Italian novels and critics. Open to upper division Italian majors only.

199. Independent Studies in Italian. (1–5) I, II, III. The Staff
Individual investigations in literary fields.

Foreign Literatures in English Translation

French (Please note: these courses may not be taken for major, minor or graduate credit.)

108X–Y. Representative Works of French Literature in Translation. (4) I, II, III. The Staff
Reading of works of contemporary writers such as Camus, Sartre, Beckett and Gênet. Investigation of the socio-aesthetic problems posed by these writers. For non-French majors with a good literary background only.

109X–Y–Z. Survey of French Literature in Translation. (4–4–4) Yr. The Staff
Designed to convey to non-French majors fundamental literary values of French literature. Such authors as Villon, Montaigne, Corneille, Racine studied.

112X. Nineteenth Century French Literature in Translation. (4) Yr. Mr. Walker
Readings, in translation, of selected nineteenth century French authors such as Hugo, Baudelaire, Mallarmé, Verlaine, Rimbaud, Chateaubriand, Balzac, Stendhal, Flaubert, Zola.

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* An intensive course in Italian for graduate students is also offered. See Italian 11.

123. Contemporary French Theatre in Translation. (4) I, II, III. The Staff

A study of the major French dramatists of the twentieth century, such as Sartre, Camus, Artaud, Beckett, Ionesco, Genet. Emphasis placed on contemporary plays.

127X–Y. Modern and Contemporary French Literature in Translation. (4–4–4) Yr. The Staff

Readings in English translation of twentieth century French poetry and prose: Valery, Apollinaire, Breton, Eluard, St. John Perse, Proust, Gide, Malraux, Mauriac, Camus.

134. Contemporary French Drama and Film in Translation. (4) Yr. Miss Greene

An examination of contemporary currents in French theater and film. Concentrates on theater of the absurd—Beckett, Ionesco and Genet, as well as such filmmakers as Godard.

Italian (Please note: these courses may not be taken for major, minor, or graduate credit.)

116X–Y. Masterpieces of the Italian Renaissance in Translation. (3) III. Mr. Bonadeo and Mr. Rossi

Readings to cover Machiavelli's *The Prince* and *Mandrogola*, Ariosto's *Mad Roland*, and Castiglione's *The Book of the Courtier*.

139X–Y–Z. Survey of Literature in Translation. (4–4–4) Yr. Mr. Lawton

Medieval and Renaissance periods covered the first quarter with readings of extracts from Dante, Petrarch, Boccaccio and Machiavelli. The literature of the High Renaissance, the seventeenth and eighteenth centuries covered the second quarter. The Romantic period and the twentieth century, including such authors as Pirandello and Moravia, covered the third quarter.

141A–B. Contemporary Italian Literature in Translation. (4–4) I, II. Mr. Lawton and Mr. Rossi

Major currents of Italian literature (theatre, the novel, and poetry) and the post-war Italian film. Readings of major authors, such as Pirandello, Moravia, Pavese and Montale.

Related Courses

Education

SF 290. Curriculum and Instructional Procedures and Materials Used in the Teaching of French. (3) I, II, III. Mrs. Delattre

Prerequisite: Major or minor in French.

Required of candidates for the secondary credential with a major or minor in French.

SF 292A–B–C–D. Student Teaching: French. (3–3–3–3) I, II, III. Mrs. Delattre

Prerequisite: Education SF 290 and admission to student teaching. Oral and written proficiency in French.

GEOGRAPHY

John E. Estes, Ph.D., *Assistant Professor of Geography.*
Michael W. Kuhn, Ph.D., *Assistant Professor of Geography.*
Peter F. Mason, Ph.D., *Assistant Professor of Geography.*
Bernard W. Riley, Ph.D., *Assistant Professor of Geography.*
Norman K. Sanders, Ph.D., *Assistant Professor of Geography.*

◆

Richard L. Haiman, M.A., *Acting Assistant Professor of Geography.*

Geographers investigate the surface of the earth as the home of man. The discipline of geography treats man's environment as a system, primarily from the point of view of space through time. Geography attempts to explain the interrelationships between subsystems of man's physical environment, and man's distribution over the earth in terms of his spatial interactions with various physical and cultural phenomena. Geography is an approach to knowledge which is essentially a synthesis emphasizing spatial and ecological considerations.

The Major

The Geography major is designed to provide a fundamental background for students seeking an interdisciplinary understanding of the world; to offer training for a teaching career in Geography and the Social Sciences; to prepare students for graduate studies in educational theoretical and applied work in Geography; and to prepare students to conduct original research.

The program is organized around systematic, techniques, and regional approaches. Students will normally acquire familiarity with elements of both systematic analysis and regional synthesis. Students interested in becoming professional geographers are encouraged to develop a heavy additional concentration in one or more related disciplines. Specific individual programs will be worked out in consultation with advisers.

Preparation for the Major

Required: Geography 2, 3A–B, Geography 6 or 101; Anthropology 2 or 101 or 102; Biology 1A or 20 or 20Z or Botany 20 or Environmental Studies 2; Geology 2 and 2L.

Recommended: One course in statistics.

Requirements for the Major

36 Upper Division units in Geography, including 12 units from systematic courses (e.g., 105, 106, 107, 111, 113, 115A–B, 117, 118, 119, 131A–B, 160, 161, 162, 189, 195, 198, and 199) and at least 8 units from regional offerings (e.g., 141, 144, 145, 148, 152A–B, 153, 154, 155). A maximum of 8 Upper Division units may be included for Geography credit from approved courses in closely related fields, except in cases of credentials programs.

The Minor

30 units of course work in Geography distributed as follows: Geography 2, 3A–B and 6 or 101 and at least 18 Upper Division units in Geography to be selected in consultation with the Credential Counselor in the Geography Program.

TEACHING CREDENTIALS

The Geography major or minor is a recommended part of the program of studies required for the elementary, secondary, and junior college credential in California. Persons intending to obtain a University recommended teaching credential from the State Board of Education may not include units in related fields for satisfaction of requirements for a Geography major or minor.

GEOGRAPHY

Lower Division Courses

2. Introduction to Human Geography. (4) I, III. Mr. Riley

Prerequisite: Anthropology 2, or consent of instructor.

An introduction to the geography of man, stressing concepts basic to understanding the variety of man-land relationships arising from the interaction of culture and the physical environment.

3A–B. Elements of Physical Geography. (4–4) I, II, III. The Staff

Geography 3B may be taken prior to Geography 3A.

A systematic analysis of the earth's physical environment, including principal features of earth-sun relations, examining the nature, distribution and interrelationships of climate, landforms, soils, water and vegetation on the earth's surface.

3A. Earth-sun relationships and the geographic grid; atmospheric circulation, dynamics of weather and oceans; the characteristics, classification, and distribution of climates, soils and natural vegetation.

3B. The earth as the home of man. Earth origins, composition, landforms, weathering, erosion, beach processes, and results of human interference.

6. Spatial Analysis. (4) II, III. Mr. Kuhn, Mr. Mason

Introduction to the science of geography and geographic research, including a review of core concepts, theories, and methodologies important for spatial analysis.

Upper Division Courses

101. Spatial Analysis. (4) II, III. Mr. Kuhn, Mr. Mason

Prerequisite: Designed for the major. Non-majors should consult instructor.

Introduction to the science of Geography and geographic research, including a review of core concepts, theories, and methodologies important for spatial analysis. Special research project required for majors taking course for Upper Division credit. Not open to students who have taken Geography 6 or equivalent.

105. Economic Geography. (4) I. Mr. Mason

Prerequisite: Economics 114; or consent of instructor.

Analysis of the geographic aspects of production, consumption, and exchange.

106. Urban Geography. (4) I. Mr. Kuhn

Historical and contemporary analysis of concepts and problems relating to the distribution, function structure, and regional setting of urban centers.

107. Introduction to Urban Ecology. (4) II. Mr. Kuhn

Prerequisite: Geography 106, or consent of instructor.

Seminar on the urban environment. Physical, biological and social aspects of urban environmental problems will be considered.

111. Climatology. (4) II. Mr. Haiman

Prerequisite: Geography 3A and consent of instructor. Characteristics and distributions of climatic phenomena arising from interactions of the atmosphere and the earth's surface; characteristics of climatic classifications.

113. Applied Geomorphology. (4) Mr. Mason

Prerequisite: Geography 3B.

Dynamics of the development of landforms with special emphasis on the problems of human utilization of the earth's surface.

115A. Geographic Photo Interpretation. (4) II. Mr. Estes

Lecture, 3 hours; laboratory, 3 hours. Prerequisite: Geography 3A required; introductory Botany and Geology recommended.

Interpretation of physical and cultural geographic phenomena as recorded by orbital and aerial sensing systems with emphasis on conventional aerial photography.

115B. Geographic Remote Sensing Techniques. (4) III. Mr. Estes

Lecture, 3 hours; laboratory, 3 hours. Prerequisite: Geography 3A, 3B or equivalent and Geography 115A, Botany 20 and Geology 2, 2L and consent of instructor.

Interpretation of environmental phenomena recorded by orbital and aerial multispectral sensing systems with emphasis on non-visual and multiband sensing techniques.

***117. Geographic Field Techniques.** (4) III. The Staff

Prerequisite: Geography 3A–3B, and consent of instructor.

Introduction to the basic methods of geographic survey and analysis.

***118. Introduction to Cartography.** (4) The Staff

Prerequisite: Geography 2 and 3A–B or consent of instructor.

Survey of methods for graphic representation of patterns on the earth's surface as an essential component of the methodology of professional geography. Cartography is examined as both a research technique and an analytical tool. Discussion includes map projections, map compilation, generalization, symbolization and reproduction, and recent advances in the field.

119. Selected Field Analysis in Geography. (1) III. The Staff

Prerequisite: Geography 3A–B or consent of instructor.

Investigation of a selected geographic area. Conducted during a contiguous four day field trip (area and focus of study variable each time of offering. May be repeated once for credit).

***131A. Principles of Soil Science.** (5) The Staff

Prerequisites: Geography 3A–B, or Geology 2 or 101 or 117, or consent of instructor.

Introduction to basic principles of soil formation, soil morphology. Soils and soil-stratigraphy as an aid in interpretative problems in geomorphology, archaeology, and poleoclimatology.

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* Not offered 1971–72.

***131B. Principles of Soil Science.** (5) The Staff
Prerequisites: Geography 131A; Geography 3A–B, or Geology 2 or 101 or 117, or consent of instructor.
Soil component analysis. Microscopic and X-ray study of processes of weathering and development of clay minerals. Lecture, 2 hours; Laboratory, 4 hours.

141. Geography of the Arid Lands. (4) III. Mr. Estes
Prerequisites: Geography 3A–B, or consent of instructor.
Comparative study of the arid-lands habitats, investigating the physical and cultural complexes of the world's arid regions, covering climate, landforms, water, soils, vegetation, population and resources.

***144. Cultural Geography of the Sea.** (4) Mr. Sanders
Prerequisites: Geography 2, Geography 3A recommended.
Geographic survey of man's interactions with the marine and shore environment.

***145. Resource Ecology of the Marine Environment.** (4) The Staff
Prerequisites: Geography 2, Geography 3A recommended.
Ecologic survey of role of the oceans in the planetary environment and the utilization by man of the planet's marine resources.

148. California. (4) III. Mr. Kuhn, Mr. Mason
Intensive study of the physical and cultural processes that have shaped and are shaping the landscapes of California.

152A. Africa South of the Sahara. (4) I. Mr. Riley
West and East Africa. A survey of human ecological differentiation, for both the historical and contemporary interactions of physical and cultural patterns in the geography of modern Africa.

152B. Africa South of the Sahara. (4) II. Mr. Riley
Central and South Africa. A survey of human ecological differentiation, for both the historical and contemporary interactions of physical and cultural patterns in the geography of modern Africa.

***153. Latin America.** (4) The Staff
Geographic characteristics of the Latin American region.

154. Australasia and Oceania. (4) II. Mr. Sanders
Characteristics and problems of Australia, New Zealand, Fiji and other developing nations in the Southwest Pacific.

***155. Geography of the Soviet Union.** (4) Mr. Estes
A systematic regional approach to the study of the physical and cultural phenomena which characterize the Soviet Union.

***160. Environmental Conservation and Resource Management.** (4) The Staff
Prerequisite: Geography 3A.
Evaluation of environmental resources and appraisal of the economic and related demands placed on such resources. Analysis of global and regional patterns of resource use and exploitation.

161. Man in Nature. (4) II. Mr. Haiman
Prerequisite: Geography 3, and consent of instructor.
Geographical ecology; the impact of human activities on world environments.

162. Environmental Pollution. (4) I, III. Mr. Sanders
Prerequisite: Geography 3A–B, or consent of instructor.
Human contamination of the environment. Includes discussion of air, water, land and space pollution and methods of pollution control. Noise is studied as a form of pollution.

189. Growth of Geographic Thought. (4) III. Mr. Riley
Prerequisite: Senior standing in Geography or special consent of instructor.
Seminar in methodology and concepts of Geography. Examination of the contributions of selected individuals and of historical and contemporary schools of Geography.

***195. Selected Problems in Geography.** (2–4) The Staff
Prerequisite: consent of instructor.
Investigation of selected geographic factors of major significance to human environmental interactions. (Scope and emphasis variable each time offered. May be repeated once for credit.)

198. Readings in Geography. (1–2) I, II, III. The Staff
Prerequisite: consent of instructor and upper division standing.
Taken with consent of instructor and the Chairman of the department. Designed to provide in-depth directed inquiry into a topic of interest to the student. Maximum of four units may be accumulated.

199. Independent Studies. (1–5) I, II, III, IV. The Staff
Prerequisite: Upper Division standing with a 3.0 grade point average within the major. Plan for the study must be submitted to, and approved by, the Department Chairman.
Selected readings or research under the direction of a faculty member. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

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* Not offered 1971–72.

GEOLOGICAL SCIENCES

[1]Preston Cloud, Ph.D., *Professor of Biogeology.*
John C. Crowell, Ph. D., Sc.D., *Professor of Geology.*
Richard V. Fisher, Ph.D., *Professor of Geology (Chairman of the Department).*
Clifford A. Hopson, Ph.D., *Professor of Geology.*
Robert M. Norris, Ph.D., *Professor of Geology.*
[1]George R. Tilton, Ph.D., *Professor of Geochemistry.*
Robert W. Webb, Ph.D., *Professor of Geology.*
George Tunell, Ph.D., *Professor of Geochemistry, Emeritus.*
C. Douglas Woodhouse, LL.M., *Professor of Mineralogy, Emeritus.*
[2]Donald W. Weaver, Ph.D., *Associate Professor of Geology.*
William S. Wise, Ph.D., *Associate Professor of Geology.*
Keith B. Macdonald, Ph.D., *Assistant Professor of Oceanography.*
[2]Arthur G. Sylvester, Ph.D., *Assistant Professor of Geology.*

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Arne Junger, B.S., *Research Associate in Geophysics.*
Parke D. Snavely, M.A., *Research Associate in Geology.*

The Major

Geology is the science of the earth—the study of its rocks, minerals, records of ancient life, and of the physical, chemical, and biological processes, past and present, at work in the earth's interior, on its surface, and within its envelope of water and air. Its methods are applicable to studies of the moon and planets. From these, arises a better understanding of our surroundings, as well as knowledge applicable to the solution of many of the pressing environmental problems now confronting mankind. The Department's program leading to the bachelor's degree provides the background in elementary geology, basic sciences, and mathematics necessary to undertake graduate work in geology or closely related fields such as geophysics, geochemistry, biogeology, or oceanography. While providing a basic foundation in geology, the program retains the flexibility to permit preparation for ultimate specialization in related fields. Thus, in close consultation with the undergraduate adviser, each student develops an individual program tailored to his needs and interests.

Preparation for the Major

Chemistry 1A–B–C, Mathematics 3A–B–C, 4A, Physics 8A–B–C, Geology 2, 2L, 3, 3L, 6A–B, 195; *or acceptable equivalents.* Recommended: Russian, German, or French.

Requirement for the Major

The College of Letters and Science requires 60 upper division units for graduation. Of these, up to 48 units may be in the major and related fields. Among the recommended Geology courses are 102A–B–C, 103, 104A, 110, 111, 112 or 122, 118, 124, 135, and 195, but other patterns, leading to special emphases in biology, geochemistry, geophysics, oceanography, or special facets of environmental science, are acceptable. Thus, any approved combination of upper division courses in geology, chemistry, mathematics, physics, or biology will complete the major, so long as at least 24 units in geology are included.

The Minor

Required: Thirty units, including Geology 2, 2L, 3, 3L, 6A or 111, and 104A, but not to include Geology 199.

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[1] Absent on leave, 1971–72.
[2] Absent on leave, 1973–74.

Departmental Advising

An undergraduate adviser will advise majors and prospective majors and assist in their program planning. A graduate adviser, aided by a guidance committee, assists M.A. and Ph.D. candidates. Prospective students should consult the appropriate adviser before beginning their calendar of studies.

GRADUATE PROGRAM IN GEOLOGICAL SCIENCES

The Department awards the M.A. and Ph.D. degrees in Geology. A candidate for admission, in addition to fulfilling the general requirements of the Graduate Division, must present his score on the Graduate Record Examination and three letters of recommendation from faculty members or others familiar with the applicant's previous studies or work. Entering students will confer with the graduate adviser and a placement committee to determine a suitable program of study, based on each student's objectives and previous training.

REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

1. Demonstration by examination of a scientific reading knowledge of any modern foreign language.
2. An integrated program of studies approved by a placement committee and the graduate adviser.
3. Preparation of a satisfactory thesis, or
4. Satisfactory completion of such examinations as the student's guidance committee may prescribe, if he follows the examination plan.

REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

1. An excellent reading knowledge of one foreign language, generally French, German, or Russian, demonstrated by examination or course work. An adequate reading knowledge of two languages other than English may be opted in special circumstances upon recommendation of the student's guidance committee.
2. The candidate must demonstrate the following proficiencies by course work and by written departmental qualifying examinations:
    a. Satisfactory knowledge of sciences other than geology which are germane to his fields of interest.
    b. Broad knowledge in the geological sciences, particularly those aspects that relate to his specialization.
    c. Superior competence in his field of specialization.
3. On completion of the language and qualifying examinations, the candidate pursues a plan of research leading to the doctoral dissertation. Before being formally admitted to candidacy for the doctorate he must also pass a comprehensive oral examination administered by his dissertation committee.
4. The dissertation, prepared in form suitable for professional publication, must be approved by the committee, and the candidate is required to present its principal conclusions in open forum.
5. The doctorate must be completed within five years after the comprehensive oral examination is passed.

TEACHING CREDENTIALS

Either a major or a minor in geology may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. Detailed information is given in *The Graduate School of Education Announcement.*

GEOLOGICAL SCIENCES

Lower Division Courses

2. General Geology: Physical. (4) I, II, III. The Staff

Lecture, three hours.

An introduction to the science of the earth; properties and processes of the earth's interior and crust and their interaction with surface processes which modify and shape man's physical environment.

2L. Laboratory, General Geology: Physical. (1) I, II, III. ———

Laboratory, three hours. Should be taken concurrently but may follow Geology 2.

Identification of common minerals and rocks. Introduction to topographic and geologic maps, land forms, and geologic structures. Field trips.

3. General Geology: Historical. (3) III. Mr. Norris

Lecture, three hours. Prerequisite: Geology 2.

Antiquity and history of the earth, its physical changes, and the record of biological evolution.

3L. Laboratory, General Geology: Historical. (1) III. ———

Laboratory, three hours. Should be taken concurrently but may follow Geology 3.

Elementary problems in paleontology and stratigraphy.

4. Introduction to Oceanography. (4) II. Mr. Macdonald

Lecture, three hours; discussion, one hour.

A broad introduction to oceanography covering the major physical, chemical, biological, and geological features of the oceans, their role in earth history, and potential use as a natural resource.

6A–B. Introduction to Mineralogy. (4–4) I, II. Mr. Webb

Lecture, one hour; laboratory, six hours. Prerequisite: high school or college chemistry. 6A to be completed before 6B.

Determinative mineralogy and crystal morphology.

Upper Division Courses

***100A. Frontiers of Earth Science.** (4) I. Mr. Tilton

Lecture, three hours; discussion, one hour.

Introduction to earth and planetary science, with emphasis on the origin and composition of the earth, moon, and planets, and the origin of life. Additional topics will include sea floor spreading and continental drift, earthquake seismology, and geochronology. Principally for non-majors.

101. Principles of Geology. (5) I. The Staff

Lecture, three hours; laboratory, three hours; field trips. (Not open to students who have taken Geology 2.)

Geological principles and processes. Forces at work within the earth and upon its surface that change the physical and biological environments. Geologic time and the inevitability of change.

102A. Petrography of Igneous Rocks. (5) I. Mr. Hopson

Lecture, two hours; laboratory, six hours. Prerequisite: Geology 110.

Identification and interpretation of igneous rocks utilizing the petrographic microscope and hand lens.

102B. Sedimentary Petrology. (5) III. Mr. Fisher

Lecture, two hours; laboratory, six hours; field trips. Prerequisite: Geology 6A.

Origin, interpretation and identification of sedimentary rocks.

102C. Petrography of Metamorphic Rocks. (5) III. Mr. Hopson

Lecture, two hours; laboratory, six hours. Prerequisite: Geology 110, 102A, 102B, or consent of instructor.

Identification and interpretation of metamorphic rocks utilizing the petrographic microscope and hand lens.

103. Fundamentals of Structural Geology. (3) II. Mr. Crowell

Lecture, three hours; field trips. Prerequisite: Geology 104A.

Studies of deformed rocks, folding and faulting, and tectonics of the earth, particularly the crust.

103L. Laboratory, Structural Geology. (2) II. Mr. Crowell

Laboratory, four hours; field trips. Geology 103 to be taken concurrently.

Descriptive geometry applied to geologic problems, use of stereonet, structure contouring and isopaching, map interpretation, exercises in structural analysis and synthesis.

104A. Field Studies in Geologic Methods. (5) I. Mr. Sylvester and Staff

Lecture, one hour; laboratory, three hours; field, eight hours. Prerequisites: Geol. 2, 2L and 3, 3L (or 195), desirable.

Introduction to the methods of geological observation and interpretation, with an emphasis on understanding earth processes in the field and reconstructing the physical history of the earth; the stratigraphic, petrologic, and structural relations of rocks; methods used in solving problems of the geological environment.

104B. Field Methods. (5) III. The Staff

Field and laboratory, thirteen hours. Prerequisite: Geology 102B.

Geologic mapping on topographic maps and aerial photographs; use of geologic field instruments; field techniques; preparation of geologic maps and reports.

105. Marine Geology. (4) I (alt. years). Mr. Norris

Lecture, three hours; field trips. Prerequisite: Geology 3, or 101, or consent of the instructor.

Geologic processes in the sea; rocks and sediments of the sea bottom and the shoreline.

106. Geological Problems of the Human Environment. (4) III. Mr. Crowell

Lecture, three hours; field trips. Prerequisite, Env. Sci. 6, or Geol. 2 and 3 or equivalent, or consent of instructor.

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* Not offered 1971–72.

Problems concerning earthquakes, mineral and energy resources, construction projects (dams, highways, tunnels, etc.) floods, beach erosion, etc. Principles of sound planning for the human use of the solid earth.

107. Geology of North America. (4) III. (alt. years). Mr. Norris, Mr. Webb

Lecture, three hours; field trips. Prerequisite: Geology 3, or 101, or consent of the instructor.

109. Geology of California. (4) III (alt. years). Mr. Norris, Mr. Webb

Lecture, three hours; field trips. Prerequisite: Geology 3, or 101, or consent of the instructor.

110. Optical Mineralogy. (5) I. Mr. Wise

Lecture, three hours; laboratory, six hours. Prerequisite: Geology 6A.

Principles and methods of optical crystallography and optical mineralogy.

111. Concepts of Paleontology. (4) I. Mr. Macdonald

Lecture, two hours; laboratory, six hours. Prerequisites: Biology 20, or equivalent, and/or consent of instructor.

An introduction to the principles of taxonomy, evolution, and paleontology as exemplified by fossils: Demonstration of these principles through laboratory and field studies.

112. Stratigraphic Paleontology. (4) II (alt. years). Mr. Weaver

Lecture, two hours; laboratory, three hours; field trips. Prerequisite: Geology 104B, 111.

Principles of stratigraphic paleontology and the stratigraphic distribution of fossils.

113. Engineering Geology. (3) I. Mr. Weaver

Lecture, one hour; laboratory, six hours. Prerequisite: Senior standing and consent of instructor.

Application of the principles of geology to civil engineering problems in dam construction, landslides, ground water, building sites, building materials, marine shorelines, petroleum industry, military operations. Course will involve discussion, laboratory, and field problems.

117. Geomorphology. (4) I or II (alt. years). Mr. Norris, Mr. Webb

Lecture, three hours; field. Prerequisite: Geology 3, or 101, or consent of instructor.

Evolution of the landscape and relief features of the earth.

118. Summer Field Geology. (12) The Staff

Eight weeks in the field during the summer. Prerequisite: Geology 104A.

Preparation of a geologic map, geologic sections, and a report on a selected region.

119. Field Investigations in Geology. (9) The Staff

Prerequisite: Geology 104A and consent of instructor.

Selected field areas are investigated as research problems. Content varies from year to year. (May be taken in lieu of Geology 118, with approval of the Department.)

122. Physical Stratigraphy. (3) III (alt. years). Mr. Fisher

Lecture, two hours; seminar, one hour. Prerequisites: Geology 102B.

Principles and processes involved in the development and description of stratified rock accumulations.

124. Geochemistry I. (4) I. Mr. Tilton, Mr. Wise

Lecture, three hours; discussion, one hour. Prerequisites: Chemistry 1C and any of Geol. 2, 100A, or 101.

Distribution and geochemical classification of the elements. Crystal chemistry. Solubility and chemical equilibrium in solutions. Phase diagrams, crystallization of magmas and metamorphic reactions.

125. Geochemistry II. (4) II. Mr. Tilton

Lecture, four hours. Prerequisites: Geol. 124, Mathematics 3C.

Origin, age, and abundance of elements. Evolution of meteorites, the moon, and the earth. Radiometric dating.

126. Experimental Methods in Geochemistry. (3) III. Mr. Tilton

Lecture, two hours; laboratory, three hours. Prerequisite: Geology 125.

Use of experimental techniques, including counting of alpha, beta, and gamma radiations applied to problems of geochemical interest.

127. X-Ray Crystallography. (3) On demand. Mr. Wise

Lecture, two hours; laboratory, three hours. Prerequisite: Geology 110, or consent of the instructor.

Single-crystal x-ray diffraction techniques in the study of internal symmetry, space groups, and structure.

128. Advanced Techniques in Mineralogy. (4) III (alt. years). Mr. Wise

Lecture, two hours; laboratory, six hours. Prerequisite: Geology 110.

Theory and practice of advanced techniques and methods in mineralogy: the universal stage microscopy, ore microscopy, and x-ray diffraction.

135. Geophysics. (4) II. Mr. Karig

Lecture, four hours. Prerequisite: Mathematics 3C.

Introduction to geophysical principles and their applications to geological problems.

136. Methods in Geophysics. (3) III. Mr. Karig

Lecture, two hours; laboratory, three hours. Prerequisite: Geology 135.

Interpretation theory, field methods, application of computers in the analysis of geophysical data.

145. Resources and Man. (4) On demand. Mr. Cloud

Discussion, three hours. Prerequisite: Consent of instructor.

Considers interactions between man and his resources with emphasis on questions of resource adequacy and environmental quality.

160A–B–C. Seminar in Geology. (1) I, II, III. The Staff

Prerequisite: Junior major in Geology or consent of instructor.

Attendance at departmental "Journal Club" (Geol. 260, Seminar in Geology) and brief written evaluations of the three papers which, in the student's judgment, were the best of the quarter.

190. Advanced Studies in Paleontology. (1–4) I, III. Mr. Macdonald

Laboratory, three to twelve hours. Prerequisite: Geology 111 and consent of instructor.

Designed to meet the interests and needs of individuals students. Selected readings and laboratory work in systematic paleontology; field studies of recent or fossil biotas; animal-substrate relations, biostatistics, etc. Term paper required.

195. Adventures in Earth History. (5) I. Mr. Cloud

Discussion and lecture, four hours. Prerequisite: Consent of instructor.

Current and classic problems in the history of the earth from its origin to the present. Designed to integrate and extend the historical aspects of the undergraduate program for science majors and beginning graduate students.

198. Readings in the Geological Sciences. (2–4) I, II, III. The Staff

Prerequisite: Consent of the instructor and the Chairman.

Critical reviews and discussions of selected geological subjects. May be taken more than once at the option of the student; not more than four units may be included in the minimum requirements for the major.

199. Independent Studies in Geology. (1–5) I, II, III. The Staff

Prerequisite: senior standing with a 3.0 grade-point average within the major, or by special permission.

Selected research under the direction of a faculty member. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

201A. Graduate Field Seminar. (3) I. The Staff

Three field problems, each followed by a written report. (Required of entering graduate students.)

201B. Graduate Field Seminar. (3) III. The Staff

Three field problems, each followed by a written report. (Required of all graduate students in the academic year in which 201A is completed.)

204. Geology of Fluids and Flow. (3) II (alt. years). Mr. Fisher

Lecture, three hours. Prerequisite: Consent of instructor.

Characteristics of fluids—air, water, gases, lava, magma. Dispersal mechanisms of wind, stream, mud flow, turbidity current, pyroclastic flow and lava flow. Fluidization and diatremes. Flowage differentiation and crystal settling in silicate fluids.

206. Volcaniclastic Rocks and Sediments. (3) II (alt. years). Mr. Fisher

Lecture, one hour; laboratory, six hours. Prerequisite: Consent of instructor.

Genesis and description of volcaniclastic rocks—pyroclastic, hyaloclastic and epiclastic. Dispersal and depositional mechanisms, including subaerial and submarine varieties.

210. Paleoecology: Principles and Approaches. (4) III (alt. years). Mr. Macdonald

Discussion, three hours. Prerequisite: Consent of instructor.

Application of paleontologic, sedimentologic, and geochemical approaches to the interpretation of ancient environments and the solution of paleobiological problems. Laboratory, field, or library research leading to a term paper.

212. Seminar in Stratigraphy and Paleontology. (2) II or III. Mr. Weaver

Discussion, two hours. Prerequisite: Geology 111, 112.

A review and discussion of selected current and classic works in the field of stratigraphy and paleontology.

214. Seminar: Problems in Marine Science. (4) III (alt. years). Mr. Macdonald

Discussion, three hours. Prerequisite: Consent of instructor.

A critical review of research on selected topics in marine science. Subject matter will change from year to year; typical themes will include: (1) estuaries and coastal lagoons; (2) coral reefs past and present; (3) continental shelves; (4) recent sedimentary environments; (5) oceanography of shallow seas.

218. Micropaleontology. (4) II. Mr. Weaver

Lecture, two hours; laboratory, six hours. Prerequisite: Geology 111, 112.

220. Biogeology. (4) III. Mr. Cloud

Lecture, one to three hours; laboratory, zero to four hours, as appropriate to course content. Prerequisite: Consent of instructor. Students with biological, geological, and chemical backgrounds encouraged.

Selected subjects related to the evolution of the primitive earth and to environmental and paleomicrobiological processes and events in geology.

221. Seminar in Petrofabrics. (4) II (alt. years). Mr. Sylvester

Lecture, two hours; laboratory, six hours. Prerequisite: Geology 103 and 110, or consent of instructor.

Consideration of theoretical, experimental, and empirical aspects of microscopic analysis of metamorphic tectonites.

225. Advanced Igneous Petrology. (4) I (alt. years). Mr. Hopson

Lecture, two hours; laboratory, six hours. Prerequisite: Geology 102A.

The study of igneous rocks and their origins, with emphasis on their petrography, physical chemistry, and field relations.

226. Thermodynamics and Petrologic Applications. (4) II (alt. years). Mr. Wise

Lecture, three hours; laboratory, one hour. Prerequisite: a course in physical chemistry.

Derivation of first, second, and third laws thermodynamics. Application of free energy, entropy, and heat capacity calculations to petrologic problems.

227. Mineral Paragenesis. (2) II (alt years). Mr. Wise

Lecture, two hours. Prerequisite: Geology 128, or consent of instructor.

Application of mineral data, such as composition and structural state, to rock origins.

227L. Laboratory, Mineral Paragenesis. (2) II (alt. years). Mr. Wise

Laboratory, six hours. Geology 227 to be taken concurrently.

Practical application of mineral data, such as composition and structural state, to rock origins.

228. Isotope Geology. (3) III. Mr. Tilton

Lecture, three hours. Prerequisite: Geology 125.

Methods of age determination including dating of igneous rocks and sediments. Interpretation of discordant lead ages. Use of lead and strontium as natural tracers. Light stable isotopes, with emphasis on oxygen.

229. X-ray Spectrography. (2) II. (alt. years). Mr. Wise

Laboratory, six hours. Prerequisite: permission of instructor.

Rock analysis: preparation of specimens, x-ray spectrographic analysis, and supporting wet chemical methods.

230. Field Studies in Tectonics. (4) I. Mr. Crowell

Seminar, discussion, and field trips. Prerequisite: Geology 201A or consent of instructor.

Advanced seminar on a local tectonic problem.

231. Structural Analysis of Deformed Rocks. (3) II (alt. years). Mr. Sylvester

Lecture, three hours, and field trips. Prerequisite: Geology 103 or equivalent.

Review of selected classical and current works dealing with geometrical and statistical analysis of tectonites on the macroscopic and megascopic scales. Computer analysis of field measurement data.

235. Advanced Geophysics. (3) III (alt. years). Mr. Karig

Discussion, three hours. Prerequisite: Geology 135.

The study of geophysical evidence relating to the structure of the earth's crust and upper mantle; geophysical investigations of the continental shelf and ocean basins.

236. Physical Geology of California. (3) on demand. Mr. Webb

Discussion, three hours. Prerequisite: Geology 201A or consent of instructor.

Problems in physical geology of California; seminar.

247. Seminar in Quaternary Geology. (3) On demand. Mr. Norris

Discussion, three hours. Prerequisite: Geology 117 or consent of instructor.

249. Seminar in Structure and Tectonics. (4) II. Mr. Crowell

Discussion, three hours; field trips. Prerequisite: Geology 201A or consent of instructor.

Topical structural geology and tectonics.

250. Contemporary Issues in Earth and Planetary History. (2–6) On demand. Mr. Cloud

Discussion, one to five hours, as appropriate to content. Prerequisite: A year of graduate work and consent of instructor.

Seminar discussion of topics to be selected for their timeliness and interest to students.

260. Seminar in Geology. (1) I, II, III. The Staff

Two hours per week. (Required of all graduate students.)

Presentation and discussion of current research, and reviews of the literature on selected geologic concepts.

270. Seminar in Geologic Problems. (1–3) I, II, III. The Staff

Discussion, three to nine hours. Prerequisite: Graduate standing.

Review and discussion of a current problem in geology. Content is variable and depends on student interest.

280. Seminar in Field Geology. (1–4) I, II, III. The Staff

Field.

Field trips of one day or more, organized as opportune. Appropriate report required for each trip. Credit is one-half unit per day in the field, with a maximum of one unit for any trip. May be repeated for a maximum of 8 units each academic year. S/U grading.

596AA–596ZZ. Directed Reading and Research. (2–6) I, II, III. The Staff

Prerequisite: Consent of instructor and Graduate Advisor.

Individual tutorial. Written proposal for each tutorial must be approved by the instructor and the department chairman, and filed with the Graduate Division.

597AA–597ZZ. Individual Study for Ph.D. Examinations. (1–12) I, II, III. The Staff

Prerequisite: Consent of instructor and Graduate Advisor.

Instructor should be student's major professor or chairman of his committee.

598AA–598ZZ. Master's Thesis Research and Preparation. (1–6) I, II, III. The Staff

Prerequisites: Consent of the instructor and Graduate Advisor.

Instructor should be chairman of the student's thesis committee.

599AA–599ZZ. Ph.D., Dissertation Preparation. (1–6) I, II, III. The Staff

Prerequisite: Consent of instructor and Graduate Advisor.

Instructor should be chairman of the student's doctoral committee.

GERMANIC AND SLAVIC LANGUAGES AND LITERATURES

Stuart P. Atkins, Ph.D., *Professor of German.*
Richard C. Exner, Ph.D., *Professor of German.*
Rolf N. Linn, Ph.D., *Professor of German.*
Harry Steinhauer, Ph.D., *Professor of German, Emeritus.*
[2]John T. Waterman, Ph.D., *Professor of German (Chairman of the Department).*
[3]Gunther H. Gottschalk, Ph.D., *Associate Professor of German.*
Albert Kaspin, Ph.D., *Associate Professor of Russian.*
Ursula R. Mahlendorf, Ph.D., *Associate Professor of German.*
Donald B. Johnson, Ph.D., *Assistant Professor of Russian.*
[1]Burt H. Seidenberg, Ph.D., *Assistant Professor of German.*
Frank Tobin, Ph.D., *Assistant Professor of German.*
Torborg L. Lundell, M.A., *Acting Assistant Professor of Swedish.*
L. Carl Moody, M.A., *Acting Assistant Professor of Russian.*

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Clifford A. Barraclough, M.A., *Lecturer in German.*
William F. Holtrop, Ed.D., *Lecturer in German and Dutch.*
Roselinde Konrad, *Lecturer in German.*
Mstislav Kostruba, M.A., *Lecturer in Russian.*

The Department reserves the right to place students in courses from which they can best profit. Students who possess a native command of a foreign language will not be permitted to enroll in lower division courses of that language.

A student who receives a D grade in elementary language courses (2–5) is strongly advised not to proceed to the next course. He should either repeat the course for no credit and obtain at least a C grade or engage a tutor to prepare him for the next course.

For those students who prefer to stress the development of reading skills, the Department offers 4R, 5R, and 6R (see course descriptions).

To complete second year German, students may take German 6, 6R or 16 (see course descriptions).

THE MAJOR IN GERMANIC LANGUAGES AND LITERATURES

Preparation for the Major—Courses 1, 2, 3, 4, 5, or four years of high school German subject to validation by passing the departmental test given at the beginning of each quarter, and courses 6 or 16, or equivalent to be tested by examination. German 16 is highly recommended for majors with a literary interest. All German majors must take History 4A–B–C. Philosophy 20A–B–C is strongly recommended.

Students who wish to make German their major subject must have maintained an average grade of at least C in the college courses in German taken prior to their junior year. Students transferring from other institutions may be tested by examination.

Requirements for the Major—The German major consists of forty upper division units. These must include German 101A–B (or 110A–B for native speakers), 120 and 115A–B–C (or equivalents. An "equivalent" course—other than a survey course taken elsewhere—is any one of the literature courses that covers approximately the same material as any one quarter of the survey course.); the remaining sixteen units should be divided among upper division courses.

Native speakers of German should substitute German 110A–B for German 101A–B.

The major in German who goes to Göttingen under the EAP program is expected to do 12 units beyond the required course 101A–B (GC 106A–B–C) of the forty required for the major on this campus, either before or after his year abroad.

All Göttingen Center literature courses are acceptable for the major in German, except GC 134, German Folklore, which has not been counted toward the major in the past. The department would consider a petition on this matter.

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[1] Absent on leave, Fall 1971.
[2] Absent on leave, Spring 1972.
[3] Absent on leave, Winter and Spring 1972.

There is a basic limit on the amount of unit credit for language courses. This is sixteen, the unit value of language courses offered at UCSB. Hence, a student may take our 16 unit language courses (101AB and 110AB) and then receive no credit for the language portion (8 units) of the required intensive program at the Göttingen study center. A student may have taken 101AB for 8 units; he would then receive 8 more units at Göttingen for the language portion of the intensive course and could thus fulfill his requirement of language courses for the UCSB major.

The remaining four units of the 12-unit intensive program consist of an upper-division literature course (GC 103), which can be applied to the literature portion of the requirements for the major. Thus the student who has completed German 101AB at UCSB will receive full credit toward the major for the intensive language program at Göttingen.

THE MAJOR IN SLAVIC LANGUAGES AND LITERATURES

Preparation for the Major—Courses 1, 2, 3, 4, 5, or 4 years of high school Russian subject to validation by passing the departmental test given at the beginning of each quarter, and course 6, or other equivalent to be tested by examination. A student may enroll in upper division courses after he has passed Russian 6 with grade B or better.

Students who wish to make Russian their major subject must have maintained an average grade of at least C in the college courses in Russian taken prior to their junior year. Students transferring from other institutions may be tested by examination.

Requirements for the Major—The Russian major consists of forty upper division units. Of these, twelve must come from courses 101A–B–C or 104A–B–C; at least eight from 108A–B–C, of which 108A is obligatory; the remaining twenty units should be divided among upper division courses. Both Russian 101A–B–C and 104A–B–C are strongly recommended.

Russian majors are urged to take History 135A–B–C.

The Minor in German or Russian

A minimum of thirty units in the chosen language is required; of these, sixteen units must be upper division courses. German 101A–B (or 110A–B for native speakers) and four units of literature are required.

For the Russian Minor, Russian 101A–B–C and any 4 units in literature are required. Russian 115A–B and 125 are strongly recommended.

THE DEGREE OF MASTER OF ARTS IN GERMANIC LANGUAGES AND LITERATURES

In addition to fulfilling the general requirements for admission to graduate status, the following departmental requirements apply:

a. The student must have an undergraduate major in German or its equivalent. Candidates who are deficient in this respect will take the necessary undergraduate courses to make up the deficiency before beginning work in the master's program.

b. The German Department offers the M.A. degree under Plan I (thesis) and Plan II (without thesis). The amount of course work required under each of these plans is specified under the general requirements for the master's degree in the Graduate Division catalog.

c. The student must have studied a Foreign Language at a level equivalent to an upper division Literature course (this may not count toward the 36 units required for the M.A.) or present an ETS score of 600 for this language.

d. Courses in other departments (English, foreign language, history, philosophy, art history, music, etc.) may, with the approval of the Graduate Adviser, be counted toward the degree if they have relevance to the student's special program.

e. The course in bibliography and methods of research must be taken by all students. The first half of it (201A) is a prerequisite for admission to any seminar in German.

f. The course in the history of the German language (German 220A–B) must be taken by all students.

g. Students who have had no Middle High German are strongly advised to take German 121, a prerequisite for graduate work in this field.

h. Every student must teach a minimum of two classes in elementary German under supervision at some time before taking the M.A. degree.

THE DEGREE OF DOCTOR OF PHILOSOPHY IN GERMANIC LANGUAGES AND LITERATURES

In addition to fulfilling the general requirements for admission to graduate status, the applicant must satisfy the following departmental requirements:

a. In his first year the student will follow a course of study leading to the M.A. degree, but under Plan I he may not take more than four units of undergraduate work and under Plan II no more than twelve.

b. A student who enters the program with an M.A. degree from another institution will take, during the first weeks of attendance, an exploratory examination in language and literature designed to reveal his weaknesses, if any, and to help the Graduate Adviser in making up his program.

c. Before admission to candidacy for the doctorate, the student will be required to demonstrate, by formal or informal departmental examination, a background knowledge of two other literatures, preferably English and French, except when some other literature has relevance to his research.

d. The student must have studied a foreign language at a level equivalent to an upper division literature course and either have a good reading knowledge of a second foreign language or show evidence of having read a list of world classics set by the department.

e. After the satisfactory completion of the M.A. equivalent, the student will be advised to take those additional courses which may be of use to him in preparation for the qualifying departmental examination.

f. The qualifying examination, which admits the student to candidacy, will consist of three written examinations, followed by an oral examination. The candidate will write A) one four-hour examination on his knowledge of German philology, including the history of the German language and either Gothic or Old High German, and B) two four-hour examinations on his knowledge of major works and movements in German literature.

g. Upon passing the qualifying examination, the student will be advanced to candidacy. He will then write a dissertation which he must defend in an oral examination when it is completed.

h. Every student must teach a minimum of three classes in elementary or intermediate German under supervision at sometime before taking the Ph.D. degree.

GRADUATE APPLICATIONS 1972–73:

As of the Fall quarter 1972 all applicants for admission to our graduate program must take the Advanced German Test administered by the Educational Testing Service. The location of testing center and dates when this test is offered may be determined by writing to Graduate Record Examinations, Educational Testing Service, Box 955, Princeton, New Jersey 08540. Results of the test must be available to us before a student's application can be considered complete.

TEACHING CREDENTIALS IN GERMAN, RUSSIAN

A major in German or Russian may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. The minor in German or Russian is applicable toward a teaching credential.

The following are required courses: German 101A–B (or 110A–B for native speakers), German 120.

For the teaching credential in Russian the courses appropriate for the major or minor and Russian 108A are required.

DUTCH

Lower Division Courses

1. Elementary Dutch. (4) I. Mr. Holtrop
Beginner's course.

2. Elementary Dutch. (4) II Mr. Holtrop
(Continuation of 1)

3. Elementary Dutch. (4) III. Mr. Holtrop
(Continuation of 2)

4. Intermediate Dutch. (4) I. Mr. Holtrop
(Continuation of 3)

5. Intermediate Dutch. (4) II. Mr. Holtrop
(Continuation of 4)

***6. Intermediate Dutch.** (4) III. Mr. Holtrop
(Continuation of 5)

8A–B–C. Dutch Conversation. (2–2–2) C III. Mr. Holtrop

Prerequisite: Dutch 5 or consent of instructor.

Conversation course conducted entirely in Dutch. Meets two hours per week.

***139AB. Dutch Literature in Translation.** (4–4) AI, BII. The Staff

Concentration on the present renewal in Dutch letters (1945–), with an in-depth study of some seven writers. The earlier modern period, 1880–1940, will be treated briefly.

GERMAN

Lower Division Courses

****1. Elementary German.** (4) I. The Staff
Beginner's course.

2. Elementary German. (4) II. The Staff
(Continuation of 1.)

3. Elementary German. (4) I, II, III. The Staff
(Continuation of 2.)

4. Intermediate German. (4) I, II, III.
(Continuation of 3.) The Staff

4R. Intermediate German. (4) I, II, III. The Staff

Prerequisite: German 3 or equivalent.

Reading of simple literary texts. Grammar review, based on a reference grammar, stressing those areas of German grammar most necessary for reading ability. Writing and speaking of German kept to a minimum. (Not recommended for majors, minors, and those who want to continue the study of German beyond the second year.)

5. Intermediate German. (4) I, II, III.
(Continuation of 4.) The Staff

5R. Intermediate German. (4) I, II, III. The Staff

Prerequisite: German 4, 4L or equivalent.

Reading of simple literary texts. Some translation. Grammar review, based on a reference grammar, stressing those areas of German grammar most necessary for reading ability. Writing and speaking of German kept to a minimum. (Not recommended for majors, minors and those who want to continue the study of German beyond the second year.)

5SC. Scientific Readings. (4) II, III. The Staff

Readings in modern scientific literature; recommended for students with a scientific interest. Student may satisfy his fifth quarter of the general language requirement by taking German 5, 5R, or 5SC.

6. Intermediate German. (4) II, III.
(Continuation of 5.) Mrs. Konrad

Students may take 6, 6R or 16 to complete second year German.

6R. Intermediate German. (4) II, III. The Staff

Prerequisite: German 5, 5R or equivalent.

Students may take 6, 6R or 16 to complete second year German.

Reading of simple literary texts. Some translation. Grammar review, based on a reference grammar, stressing those areas of German grammar most necessary for reading ability. Writing and speaking of German kept to a minimum. (Not recommended for majors, minors and those who want to continue the study of German beyond the second year.)

8A–B–C. German Conversation. (2–2–2) A I; B II; C III. The Staff

Prerequisite: German 3 or equivalent prerequisite to A, German 4 or 8A prerequisite to B, German 5 or 8B prerequisite to C.

Conversation course conducted entirely in German. Meets two hours per week.

11A–B. Elementary German—Intensive Course. (6–6) A I, B II. The Staff

Three quarters in two; equivalent to German 1, 2, and 3. Two hours daily, four days per week.

16. Introduction to Methods of Literary Interpretation. (4) I, III. The Staff

Highly recommended for the German major with a literary interest. Interpretation of basic texts of the major genres.

Students may take 6, 6R or 16 to complete second year German.

32. Germany Today. (4) I. Mr. Gottschalk, Miss Mahlendorf, Mr. Tobin

The fine arts; the political scene; books and authors; philosophy and science; the social structure. Conducted in English.

Upper Division Courses

101A–B. Advanced Composition and Conversation. (4–4) A I, II, III; B II, III. The Staff

A is prerequisite to B.

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* Not to be given, 1971–72.

** An intensive course in German is also offered. See German 11AB.

***102A–B–C. Advanced German Conversation.** (2–2–2) A I, B II, C III. The Staff
Prerequisite: German 6 or 16 or equivalent.
Does not count toward 40 unit German major.

***107. Contrastive Structures and Phonetics.** (4) Mr. Gottschalk, Mr. Waterman

***110A–B. Stylistics.** (4–4) Mr. Gottschalk
A is prerequisite to B.

***111. Interpretation of Texts.** (4) II.
Prerequisite: German 6 or 16. The Staff
Analysis of selected texts from all the genres to help the student acquire skill in reading with critical discernment.

115A–B–C. Survey of German Literature. (4–4–4) A I, B II, C III.
Prerequisite: German 6 or 16. Students should take 115A–B–C concurrently with 101A–B.
A: Literature from the High Middle Ages through Storm and Stress, Miss Mahlendorf, Mr. Tobin; B: Classicism and Romanticism, Mr. Atkins, Mr. Gottschalk, Mr. Linn; C: Büchner to Brecht, Mr. Exner, Mr. Linn, Mr. Tobin.

120. History of the German Language. (4) I. Mr. Gottschalk, Mr. Waterman

121. Middle High German Literature. (4) III. Mr. Tobin

***126. Lessing and the Enlightenment.** (4). Mr. Atkins, Mr. Linn, Mr. Seidenberg

***127A–B. Goethe.** (4–4) A II, B III. Mr. Atkins, Mr. Linn
A (or 115B) is prerequisite to B.
Major works, excluding *Faust.*

128. Goethe's Faust. (4) I. Mr. Atkins, Mr. Exner, Miss Mahlendorf

130. Schiller. (4) I. Mr. Linn, Mr. Atkins

142. The Novella: Early Nineteenth Century. (4) III. Mr. Exner, Mr. Linn, Mr. Tobin
Shorter prose works by authors born prior to 1800.

***144. The Novella: Late Nineteenth Century.** (4) Mr. Exner, Mr. Linn, Mr. Tobin
Shorter prose works by authors born after 1800.

***146. Nineteenth Century Lyrics.** (4) Mr. Atkins, Mr. Exner
Major poets and poetic movements after Goethe's death and Romanticism. Poets of the "Young Germany" movement, of Poetic Realism and Naturalism. Attention to questions of prosody.

148. Nineteenth Century Drama (Kleist to Hauptmann). (4) II. Mr. Linn, Mr. Seidenberg, Mr. Tobin
The German drama from Kleist to Hauptmann.

151. Twentieth Century Prose. (4) II. Mr. Exner, Miss Mahlendorf
Beginning with Expressionism, studies of the development of German prose in our century. Particular emphasis on the last two decades.

***153. Studies in Twentieth Century German Literature.** (4–20) Mr. Exner, Miss Mahlendorf
One or more major figures will be studied in each quarter: A) Mann, B) Rilke, C) Kafka, D) Brecht, E) Hofmannsthal. May be repeated.

***155. Twentieth Century Drama (Post Naturalism).** (4) Mr. Linn, Miss Mahlendorf
Theory, characteristics, and practices of Expressionist drama, epic theater, theater of the absurd, theater of cruelty and post-epic theater. The dramatic work of such authors as the following will be discussed: Wedekind, Kaiser, Sternheim, Toller, Brecht, Dürrenmatt, Frisch, Weiss, Grass.

157. Twentieth Century Lyrics (Expressionism and Modern). (4) I. Mr. Atkins, Mr. Exner, Miss Mahlendorf
Major developments in lyric poetry, beginning with Expressionism; emphasis on post-World War II poets and their work.

198. Readings in German. (1–2) I, II, III. The Staff

199. Independent Studies in German. (1–5) I, II, III. The Staff
199 Courses are limited to 5 units in one quarter and 12 units total.

Graduate Courses

German 201A is a prerequisite for all seminars and should therefore be taken during the first year of graduate studies.

201A–B. Bibliography and Methods of Criticism. (2–2) A I, B II. Mr. Tobin, Mr. Seidenberg

***202A–B. Gothic.** (4–4) A II, B III. Mr. Waterman

203A–B. Middle High German Literature. (4–4) A I, B II. Mr. Tobin
Prerequisite: German 121A or equivalent.

***204A–B. Old High German.** (4–4) A I, B II. Mr. Waterman

207. Renaissance and Reformation. (4) III. Mr. Atkins, Mr. Seidenberg

***208. Seminar on Seventeenth Century Literature.** (4) II. Mr. Seidenberg

***209. Seminar on Literature of the Enlightenment.** (4) III. Mr. Seidenberg

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* Not to be given, 1971–72.

220A–B. History of The German Language. (4–4) A I, B II. Mr. Waterman

***222. Seminar in Germanic Linguistics.** (4) III. Mr. Waterman

***225. Seminar in the History of German Grammar.** (4) III. Mr. Waterman

***226. Studies in the Age of Goethe.** (4–20) Mr. Atkins, Mr. Linn

Studies with special emphasis on one of the following: A. Sturm und Drang, B. Kleist, C. Hölderlin, D. the Schlegels, E. the romantic novel.

227A–B. Goethe. (4–4) A II, B III. Mr. Atkins

A. graduate course, B. seminar.

***228. Schiller.** (4) II. Mr. Linn

***229. Seminar on Schiller.** (4) III. Mr. Linn

***230A–B. The Romantic Movement.** (4–4). The Staff

***231. Seminar on Romanticism.** (4) III. Mr. Atkins

***232. Studies in Nineteenth Century Literature and Thought.** (4–36) Mr. Exner, Mr. Linn

Studies in nineteenth century literature and thought with special emphasis on one of the following major writers: A) Heine, B) Büchner, C) Stifter, D) Hebbel, E) Grillparzer, F) Keller, G) Meyer, H) Raabe, I) Fontane, J) Nietzsche, K) Schopenhauer. May be repeated for a maximum of 36 units.

235. Studies in Twentieth Century Literature. (4–36) D III, B II. Mr. Exner, Mr. Linn, Miss Mahlendorf

Studies in twentieth century literature with special emphasis on one of the following major writers: A. Hauptmann, B. Mann, C. Rilke, D. Hofmannsthal, E. Kafka, F. Brecht, G. Benn, H. Expressionism, I. Hofmannsthal and the tragic. May be repeated for a maximum of 36 units.

***236. Contemporary Literature.** (4) Mr. Exner, Miss Mahlendorf

Graduate seminar in literature after the second World War.

***240. Studies in the Main Literary Genres.** (4–24) A I. Mr. Linn, Mr. Exner, Miss Mahlendorf, Mr. Steinhauer

Studies in the main literary genres: A. Lyric, B. Drama, C. Novella, D. Novel, E. Essay, F. Tragedy and the tragic element, G. Comedy.

596AA–596ZZ. Directed Reading and Research. (1–18) I, II, III. The Staff

Individual tutorial. A written proposal for each tutorial must be approved by Department Chairman and filed with Graduate Division. Letter grade. Minimum of two units per quarter. No more than half the units necessary for the master's degree may be taken in 596.

***598AA–598ZZ. Master's Thesis Research and Preparation.** (1–12) I, II, III. The Staff

Only for research underlying the thesis, writing the thesis. Instructor should be the chairman of the student's thesis committee. S/U grade. Maximum of 12 units total. Since the student is already granted 6 units' credit toward the degree, no unit credit will be given.

599AA–599ZZ. Dissertation Preparation. (1–12) I, II, III. The Staff

Only for preparation of the dissertation. Instructor should be the chairman of the student's doctoral committee. S/U grade. Maximum of 12 units total.

Related Courses in Other Departments

Education SG390. Curriculum, Instructional Procedures and Materials Used in the Teaching of German. (3–5) I. Mr. Barraclough, Mrs. Konrad

Teaching German language and literature on the high school and college levels. Presentation and content of linguistic and literary courses. A professional course in methods.

Education SG392A–B–C–D. Student Teaching: German. (4–4–4–4) I, II, III. Mr. Barraclough, Mrs. Konrad

Required of candidates for a teaching credential with a major or minor in German.

Education SG393. Problems Seminar: Teaching: German. I, II, III. Mr. Barraclough, Mrs. Konrad

SWEDISH

Lower Division Courses

1. Elementary Swedish. (4) I. Miss Lundell

Beginner's course.

2. Elementary Swedish. (4) II. Miss Lundell

(Continuation of 1.)

3. Elementary Swedish. (4) III. Miss Lundell

(Continuation of 2.)

4. Intermediate Swedish. (4) I. Miss Lundell

(Continuation of 3.)

5. Intermediate Swedish. (4) II. Miss Lundell

(Continuation of 4.)

6. Intermediate Swedish. (4) III. Miss Lundell

(Continuation of 5.)

***8A–B–C. Swedish Conversation.** (2–2–2) A I, B II, C III. Miss Lundell

Prerequisite: Swedish 3 or equivalent prerequisite to A, Swedish 4 or 8A prerequisite to B, Swedish 5 or 8B prerequisite to C.

198. Readings in Swedish. (1–2) I, II, III. Miss Lundell

Prerequisite: upper division standing.

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* Not to be given, 1971–72.

199. Independent Studies in Swedish. (1–5) I, II, III. Miss Lundell

199 courses are limited to 5 units in one quarter and 12 units total.

SCANDINAVIAN

Upper Division Courses

139A–B–C. Scandinavian Literature in Translation. (4–4–4) A I, B II, C III. Miss Lundell

Prerequisite: None.

A: Saga, Tale, Vision; B: Drama; C: Prose.

RUSSIAN

Lower Division Courses

1. Elementary Russian. (4) I. Mr. Kostruba

Beginner's course.

2. Elementary Russian. (4) II. Mr. Kostruba

(Continuation of 1.)

3. Elementary Russian. (4) III. Mr. Kostruba

(Continuation of 2.)

4. Intermediate Russian. (4) I. Mr. Kostruba

(Continuation of 3.)

5. Intermediate Russian. (4) II. Mr. Kostruba

(Continuation of 4.)

6. Intermediate Russian. (4) III. Mr. Kostruba

(Continuation of 5.)

***11A–B. Russian for Graduate Students.** (4–4). The Staff

32. Modern Russia: Diversity and Conformity (4) II. Mr. Johnson

Prerequisite: None.

Introductory survey with emphasis on current scene. Topics: intellectual dissent, ethnic minorities, popular culture, national character, etc. Lectures and readings in English.

Upper Division Courses

101A–B–C. Advanced Russian: Third Year. (4–4–4) A I, B II, C III. Mr. Johnson

Prerequisite: Russian 6 or consent of instructor.

Introduction to extensive reading of Russian prose with discussion and composition in Russian.

104A–B–C. Advanced Russian: Fourth Year. (4–4–4) A I, B II, C III. Mr. Kaspin

Prerequisite: Russian 101C or consent of instructor.

Extensive reading of Russian prose and poetry with discussion and composition in Russian.

108A. The Russian Language: Phonetics and Phonemics. (4) I. Mr. Johnson

108B. The Russian Language: Morphology. (4) III. Mr. Johnson

***108C. The Russian Language: History of the Language.** (4) III. Mr. Johnson

115A–B. Survey of Russian Literature. (4–4) A I, B II. Mr. Kaspin, Mr. Moody

120. Russian Drama. (4) III. Mr. Kaspin

121. The Russian Short Story. (4) III. Mr. Moody

Prerequisite: Russian 6 or consent of instructor.

Analysis and discussion of various forms of the short story by Russian writers.

***122. The Novella.** (4) The Staff

Prerequisite: Russian 6 or consent of instructor.

***123. Russian Poetry of the Nineteenth Century.** (4) The Staff

A study of representative works of the major nineteenth century poets, with attention to the techniques of Russian prosody. Readings in Russian.

125. Twentieth Century Russian Literature. (4) III. Mr. Moody

130. Dostoevsky. (4) II. Mr. Kaspin

A study of Dostoevsky's principal novels and short stories in their historical and cultural contexts. Lectures and readings in English.

***131. Tolstoy.** (4) III. Mr. Kaspin

A study of Tolstoy's principal works in their historical and cultural contexts. Lectures and readings are in English.

132. Solzhenitsyn. (4) I. Mr. Moody

A study of the work of the 1970 Nobel Prize winner for Literature. Lectures and readings in English.

***140. Problems in Translation.** (4) I. Mr. Moody

Prerequisite: Russian 6 or consent of instructor.

Techniques of translating literary Russian texts into English.

199. Independent Studies in Russian. (1–5) The Staff

199 Courses are limited to 5 units in one quarter and 12 units total.

FOREIGN LITERATURES IN ENGLISH TRANSLATION

(Courses for which no knowledge of a foreign language is required.)

***Dutch 139A–B. Dutch Literature in Translation.** (4–4) I, II. The Staff

Concentration on the present renewal in Dutch letters (1945–), with an in-depth study of some seven writers. The earlier modern period, 1880–1940, will be treated briefly.

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* Not to be given, 1971–72.

German (The following courses do not apply toward a major in German.)

139A–B–C. German Literature in Translation. (4–4–4) A I, B II, C III.
Mr. Exner, Miss Mahlendorf, Mr. Tobin
Studies in the major movements from the eighteenth century to today, with special emphasis on authors such as Goethe, Schiller, Kleist, Mann, Kafka, Brecht, Hesse, Grass.

***141. German Literature of the Twentieth Century in English Translation.** (4)
Summers only. The Staff

***149. The Faust Tradition.** (4)
Mr. Atkins, Mr. Exner, Mr. Gottschalk, Mr. Linn, Miss Mahlendorf
The Faust legend in literature. Emphasis on the Chapbook, Marlowe, Goethe, and Thomas Mann.

159. Great German Writers. (4) I, II, III
Mr. Atkins, Mr. Exner, Mr. Gottschalk, Miss Mahlendorf, Mr. Tobin, Mr. Seidenberg
Intensive study of one major German author each quarter. Authors such as Goethe, Kleist, Thomas Mann, Kafka, Nietzsche and others will be read. May be repeated for 12 units.

***169A–B. The Living German Theater.** (4–4)
Mr. Exner, Mr. Linn, Miss Mahlendorf, Mr. Tobin, Mr. Seidenberg
The German theater today: plays, playwrights, and theatrical movements from the 19th century to Post World War II.

192. Truth and Fiction: A Century of German Literature in History. (4) II.
Mr. Exner and Mr. Remak
Prerequisite: upper division course in German literature or History 128, and consent of either instructor. German history, 1870–1971, as reflected in German literature. This course is the same as History 192.

Russian

115A–B. Survey of Russian Literature. (4–4) A I, B II. Mr. Kaspin, Mr. Moody
Reading and discussion in English of representative novels and short stories of Pushkin, Lermontov, Gogol, Turgenev, Goncharov, Dostoevsky, Tolstoi, Chekhov and others.

120. Russian Drama. (4) III. Mr. Kaspin
A survey of Russian drama from the 17th century to the present.

125. Twentieth Century Russian Literature. (4) III. Mr. Moody
A survey of Russian literature from the early twentieth century.

130. Dostoevsky. (4) II. Mr. Kaspin
A study of Dostoevsky's principal novels and short stories in their historical and cultural contexts. Lectures and readings in English.

***131. Tolstoy.** (4) III. Mr. Kaspin
A study of Tolstoy's principal works in their historical and cultural contexts. Lectures and readings are in English.

132. Solzhenitsyn. (4) I. Mr. Moody
A study of the work of the 1970 Nobel Prize winner for literature. Lectures and readings in English.

SCANDINAVIAN

139A–B–C. Scandinavian Literature in Translation. (4–4–4) A I, B II, C III.
Miss Lundell
A: Saga, Tale, Vision; B: Drama; C: Prose.

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* Not to be given, 1971–72.

HISPANIC CIVILIZATION

Committee in Charge

Donald M. Dozer, Ph.D., *Professor of History (Chairman of the Committee).*
Stephen S. Goodspeed, Ph.D., *Professor of Political Science.*
Winston Reynolds, *Professor of Spanish.*
Pablo Avila, Ph.D., *Associate Professor of Spanish.*
Brenton Campbell, *Associate Professor of Spanish and Portuguese.*

INTERDEPARTMENTAL MAJOR

The interdepartmental major in Hispanic Civilization is designed to serve the needs of the following students: (1) those planning careers which will necessitate residence in, or knowledge of, the countries of Spanish and Portuguese speech and culture—for example, government service, business, journalism; (2) students preparing for graduate study in the social sciences or languages and literature, with special emphasis in the Spanish, Portuguese, and Latin-American fields; (3) students desiring a general education with some emphasis in this particular area of Western culture. The geographical areas included in the scope of this major are Spanish-America, Brazil, Spain, and Portugal.

The following required courses, and those recommended, form a general guide. Selection of specific courses will be made by the student in consultation with the committee in charge, and this selection will be based primarily upon the needs and objectives of the individual student. Credit may be given for studies undertaken in Spanish, Portuguese, or Latin-American schools.

Preparation for the Major

Required courses: Spanish 25A–B, History 8A–B. Recommended courses: Anthropology 2, 3, Economics 1, 2, History 4A–B–C, Portuguese 1, 2, 3, Sociology 1.

The Major

A minimum of 36 units is required as follows: Anthropology 134, Art 161C or 163A, History 150A or B, Spanish 156A–B or 122 A–B. The remaining 17 units should be selected from Anthropology 133A–B or 135, Art 161C or 163A, Geography 153 or 156, History 150A or B, 151A, B, or C, 152B, 155A or B, 156A or B, 157A or B, 158A or B, Music 116, Political Science 132, 148A or B, 149, 199, and upper division courses in Spanish and Portuguese literature and culture.

The Minor

Hispanic Civilization may be elected as a minor. In this case the student will take 18 instead of 36 units in the upper division, i.e., those listed under "Required Courses."

TEACHING CREDENTIALS

Both the major and the minor in Hispanic Civilization are acceptable to the California State Department of Education as programs of study for a Standard Teaching Credential.

Francis Price Award in Hispanic Studies

The Hispanic Civilization Committee each year selects the recipient or recipients of the Francis Price Award, a cash prize that was established by the Hispanic Society of Santa Barbara in 1959 and named for its founder. The award is currently supported by Francis Price, Jr., in memory of his father. It is given to the junior or senior student (or students) who has demonstrated outstanding proficiency in the Spanish or Portuguese language or in other aspects of Hispanic culture, who is specializing in Hispanic studies, and who intends to continue such studies at the University of California, Santa Barbara. The prize is based not on student need but solely on scholastic achievement and promise in Hispanic studies.

Hispanic Civilization Lecture

This Committee also sponsors an annual lecture on some aspects of Hispanic Civilization by a distinguished visiting lecturer.

HISTORY

[1]Henry M. Adams, Ph.D., *Professor of History.*
Morton Borden, Ph.D., *Professor of History.*
A. Russell Buchanan, Ph.D., *Professor of History.*
[1,2]Robert O. Collins, Ph.D., *Professor of History.*
[1]Alexander DeConde, Ph.D., *Professor of History.*
Dimitrije Djordjevic, Ph.D., *Professor of History.*
[1]Donald M. Dozer, Ph.D., *Professor of History.*
[4]Alfred M. Gollin, D.Litt., D.Phil. (Oxon.), *Professor of History.*
George M. Haddad, Ph.D., *Professor of History.*
C. Warren Hollister, Ph.D., *Professor of History.*
Immanuel C. Y. Hsu, Ph.D., *Professor of History (Chairman of the Department).*
Wilbur R. Jacobs, Ph.D., *Professor of History.*
Robert L. Kelley, Ph.D., *Professor of History.*
Harold C. Kirker, Ph.D., *Professor of History.*
Leonard M. Marsak, Ph.D., *Professor of History.*
[3]Philip W. Powell, Ph.D., *Professor of History.*
Joachim Remak, Ph.D., *Professor of History.*
F. A. Bonadio, Ph.D., *Associate Professor of History.*
[1,2]Alexander B. Callow, Ph.D., *Associate Professor of History.*
Frank J. Frost, Ph.D., *Associate Professor of History.*
Otis L. Graham, Jr., Ph.D., *Associate Professor of History.*
Stephen N. Hay, Ph.D., *Associate Professor of History.*
Roderick W. Nash, Ph.D., *Associate Professor of History.*
Richard E. Oglesby, Ph.D., *Associate Professor of History (Vice Chairman of the Department).*
Carroll W. Pursell, Jr., Ph.D., *Associate Professor of History.*
Paul M. Sonnino, Ph.D., *Associate Professor of History.*
John E. Talbott, Ph.D., *Associate Professor of History.*
Lawrence Badash, Ph.D., *Assistant Professor of History.*
Wilson E. Brownlee, Jr., Ph.D., *Assistant Professor of History.*
[1]Jesús Chavarría, Ph.D., *Assistant Professor of History*
Chi-Yun Chen, Ph.D., *Assistant Professor of History.*
Harold A. Drake, Ph.D., *Assistant Professor of History.*
Francis A. Dutra, Ph.D., *Assistant Professor of History.*
Abraham Friesen, Ph.D., *Assistant Professor of History.*
[1]Carl V. Harris, Ph.D., *Assistant Professor of History.*
Matthew V. Lamberti, Ph.D., *Assistant Professor of History.*
Donald A. Limoli, Ph.D., *Assistant Professor of History.*
Lynn L. D. Marshall, Ph.D., *Assistant Professor of History.*
James C. McClelland, Ph.D., *Assistant Professor of History.*
Joan M. Reitzel, Ph.D., *Assistant Professor of History.*
Albert E. Shirk, Jr., Ph.D., *Assistant Professor of History.*

◇

William H. Alexander, M.A., *Acting Assistant Professor of History.*
J. Sears McGee, M.Phil., *Acting Assistant Professor of History.*
Ralph J. Adams, M.A., *Lecturer in History.*
Michael S. Coray, M.A., *Lecturer in History.*
George B. Dangerfield, M.A.,(Oxon.), *Lecturer in History.*
Donald C. Davidson, Ph.D., *Lecturer in History.*

Preparation for the Major

Required in lower division: History 4A–4B–4C plus any three of the following: 8A or 17A (not both); 8B or 17B (not both); 19A; 19B.

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[1] Absent on leave, fall 1971.
[2] Absent on leave, winter 1972.
[3] Absent on leave, spring 1972.
[4] Absent on leave, 1971–72.

The Major

Required: 40 units of upper division work in history, four units of which must be History 195. Upper division Q courses may be acceptable in lieu of 195. Information available from instructors of Q courses.

The Minor

Required: History 4A–B–C, plus any three of the following: 8A or 17A (not both), 8B or 17B (not both), 19A, 19B; and 12 upper division units.

Departmental Counseling

Certain members of the department are designated as undergraduate counselors. Every history major and combined social sciences major (history emphasis) is assigned to one of these counselors. Separate advisers are provided for M.A. and Ph.D. candidates.

Substitution of Requirements for Major

Students who have reached upper division status without having completed the lower division requirements for the major are permitted to make the following substitutions for the uncompleted portions of the requirements:

One upper division History course in the European field may be substituted for two lower division courses in the 4A–B–C sequence or two upper division History courses in the European field may be substituted for three lower division courses in the 4A–B–C sequence. One upper division History course in the American/Latin American field may be substituted for two lower division courses in the 17A–B or 8A–B sequence. One upper division History course in the Asian field may be substituted for two lower division courses in the 19A–B sequence.

Courses thus substituted may not be used to fulfill the required 40 units of upper division work for the major in history, though credit will be applied toward the 60 units in upper division courses required for the B. A. degree. A list of acceptable substitutes may be obtained at the History Department office.

THE GRADUATE PROGRAMS IN HISTORY

All graduate applications must be received in the Graduate Division by April 15.

The Master of Arts Program

Students who wish to pursue work toward the Master of Arts degree in History at the University of California, Santa Barbara, must meet the general requirements for admission to graduate standing. In addition they will be expected to have completed an undergraduate major in history or its equivalent. Undergraduate deficiencies as stipulated by the Department must be made up in the first year, and do not count in satisfaction of graduate degree unit or course requirements. At the outset of their graduate work, students should confer with the departmental M.A. Adviser.

The Department of History regards its M.A. degree program as a general rather than a specialized program. The entrance requirements for both the M.A. and the Ph.D. programs are virtually the same, so that the decision to enter the M.A. program amounts to a preference for training in general rather than more specialized fields. (Please note, however, that even the Ph.D. program has important general aspects.) The M.A. candidates should particularly notice that the department offers reading courses (H200) designed to cover large, general field, whereas the H201s are reading courses likely to cover more specialized fields.

The Master of Arts degree will be awarded to students who satisfy the requirements prescribed by the Graduate Council and who, in addition, meet the following requirements of the Department of History.

1. *Foreign Language*. The passing of a reading examination in at least one foreign language approved by the Department. It is expected that the candidate will meet this requirement dur-

ing the first quarter of his graduate program. In no case may he take the Comprehensive Examinations until the Foreign Language requirement has been met.

2. *Units of Work.* The completion of 36 units of upper division or graduate courses with at least a "B" average. At least 20 of these units must be in the graduate courses numbered between 200 and 290, including at least 8 units in research seminars (numbered between 202 and 290). With the permission of the professor who will supervise the work, a candidate may write a thesis within his field of specialization in partial fulfillment of the Master of Arts requirements. He will be allowed a maximum of 6 units of credit for the thesis (these units will not count as a substitute for one of the two research seminars). The thesis must be approved by a committee consisting of two departmental and one extradepartmental members. Its membership will be selected by the departmental Graduate Committee.

3. *Comprehensive Examinations.* The candidate for the M.A. degree must pass a written three hour examination in one field selected from any two of the following three groups:

Group I

Ancient History
Medieval History
Modern Europe, 1450 to 1815
Modern Europe, 1789 to present

Group II

East Asia before 1800
East Asia since 1800
South Asia
Near Eastern History
Africa

Group III

United States to 1865
United States since 1840
Latin America, Colonial Period
Latin America, National Period

In addition the student must elect one of the following options:

(1) A second three-hour examination in one field chosen from the group other than that of the first examination.

(2) A thesis on a subject to be determined in consultation with his adviser. The thesis subject must fall within the context of a field other than that of the first examination, but not necessarily a different group.

No candidate may be allowed to take the M.A. examination more than twice.

The Doctoral Program

The History Department of the University of California, Santa Barbara, offers a program leading to the Ph.D. degree with specialization available in most areas of history. Students seeking admission to the doctoral program should apply to the chairman of the Department of History through the Office of the Dean of the Graduate Division, University of California, Santa Barbara.

1. *Admission:* The Graduate Committee of the Department of History may admit a beginning graduate student directly into the Ph.D. program if the student does not seek a terminal M.A. degree and meets the standards for admission. The following factors are considered in the assessment of a student's record: Intellectual attainment, skill in the use of the English language, academic honors, confidential letters of recommendation, practical experience where relevant, and information obtained from interviews.

Any student who has been admitted to the doctoral program, but who is unable to complete it, may ask to be considered for a terminal M.A. degree. If the student has passed one foreign language examination, and if the Doctoral Committee finds that the student has approximately met the unit requirements for the M.A., that committee may then recommend that the student be eligible to take two M.A. comprehensive examinations according to the regulations established for the regular M.A. candidates.

2. *Residence:* Two years of full-time study beyond the Bachelor of Arts degree (or its equivalent) are required.

3. *Languages:* The minimum language requirement is proficiency in one modern foreign language relevant to the candidate's field of study; proficiency shall be demonstrated by an ETS score of at least 600 or, if such testing is unavailable, by an equivalent examination. Individual instructors may require proficiency in one or more additional languages.

The foreign language graduate examinations are available four times each year. The student is urged to complete the foreign language requirement as soon as possible, but in no case later than the end of his second year in the doctoral program. No student will be allowed to take the general examinations for the Ph.D. degree without having completed the language requirement.

4. *The Program:* The program falls into two parts: Preparation for and passage of the general doctoral examinations; preparation of the dissertation.

a. *Preparation for General Examinations:* Upon admission and arrival at Santa Barbara, the student must confer with the Director of Doctoral Studies who will explain all requirements and assign him to the candidate's Doctoral Adviser under whom the student will do his work. The Doctoral Adviser will be a specialist in the student's desired field of historical specialization, and will act as chairman of his examination committee. This committee will consist of the three professors under whom the student will be doing his doctoral work in the historical fields as well as one professor in the outside field he will present for examination. The membership of the committee will be recommended by the candidate's Doctoral Adviser and approved by the Director of Doctoral Studies, and entered upon the student's graduate record card.

During the first quarter, the student, in consultation with his Doctoral Adviser, will select the three fields of history and one related field of study that he will present in the qualifying examination. The outside field must be comparable in size and scope to his history fields. One field of general historical study must be chosen from the list below, as well as a second field consisting of a specialized historical area within the general field. The specialized field will usually embrace the doctoral dissertation. A third field of historical specialization outside of the general field, and a fourth field related to, but outside of the history department, will also be required.

General Fields:

1. The United States
2. Modern Europe
3. Latin America
4. Medieval Europe
5. East Asia
6. The Muslim World and South Asia
7. The Ancient Mediterranean World
8. Africa

The candidate's doctoral adviser will recommend to the Director of Doctoral Studies the four fields to be presented by the candidate. Once the Director of Doctoral Studies, acting for the department, approves these fields, they will be entered upon the student's graduate record card. Changes in the fields will not be made later than six months before the general examinations are taken.

The student will be expected to have taken, prior to the general examinations, at least six research seminars (or a total of 24 units when 2-quarter seminars are involved). No more than two seminars taken prior to receipt of the M.A. degree may be counted in satisfying this requirement. The student must take either a graduate research seminar or another graduate course in each of the four areas presented for examination. The student is urged to take a course in historiography if he has not done so prior to admission to the doctoral program. History 201 courses are not traditional research seminars. They emphasize interpretation and are directed at analysis of the historical literature of the various fields in which they are given. History 299 is designed to provide unit credit for students who are working on their master's theses (no more than 12 units) or upon their doctoral dissertations (no more than 6 units a quarter). Reading programs for the Ph.D. general examinations should be developed in consultation with the members of the examination committee.

Qualifying examinations for the Ph.D. are given annually at the beginning of October, January and May. They should normally be taken no later than two full-time years after the student has entered the program. Within a period of one month the student will take two written examinations. Each examination will be for three hours and each should be from one of his history fields. After he has passed these written examinations he will present himself for an oral examination of three hours on all four of his fields. The written examinations must be passed before the orals are taken. The selection of fields to be taken in the written examinations is to be approved by the Doctoral Adviser.

b. *Dissertation:* The doctoral dissertation must be an original work of historical research in the field of the candidate's specialization, bringing new data or new interpretations to bear on historical problems or exploring untouched, but significant historical fields. It must be written in clear prose, must have intellectual depth, and must demonstrate a mastery of historical methodology. It must be completed no more than five years after the general examination. In special cases the candidate may petition to have his limit extended.

The examination committee will also serve as the dissertation committee. The committee's approval of the topic of the dissertation will constitute a departmental commitment, subject only to questions of quality. Upon approval of the dissertation by the committee, the candidate may be asked to present himself at a date to be established by his Doctoral Adviser for a Special Examination (oral) in the field of his dissertation.

c. A candidate will normally be expected to hold a teaching assistantship for at least one year, but this requirement may be waived under special circumstances.

Doctoral programs in the Department of History are offered in all fields of history.

More detailed information may be obtained from the chairman of the department.

TEACHING CREDENTIALS

Either a major or a minor in History may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of History and in the Graduate School of Education.

HISTORY

Lower Division Courses

4A–B–C. Western Civilization. (4–4–4) I, II, III. The Staff

4A. Prehistory to 1050 A.D.

4B. 1050–1715.

4C. 1715–Present.

4A(S)–4B(S)–4C(S). Western Civilization. (1–1–1) I, II, III. The Staff

After 4A–B–C begins, selected students will be invited to enroll in the honors seminar. Such students will receive one unit for the honors seminar, 4S, or a total of five units for History 4.

8A–B. History of the Americas. (4) I, II.

8A. Establishment, institutional development, and expansion of European colonies in the Western Hemisphere; and achievement of independence. Mr. Powell

8B. Modern development of the American nations and inter-American relationships; emphasis upon United States rise as a world power. (4) I, II. Mr. Dozer, Mr. Dutra

8A(S)–8B(S). History of the Americas. (1–1) I, II. The Staff

Prerequisites: Concurrent registration in History 8 and consent of instructor.

Honors seminar. After 8AB begins, selected students will be invited to enroll in the honors seminar. Such students will receive one unit for the honors seminar, 8S, or a total of 5 units for History 8.

8Q. Topical Studies in Western Hemisphere. (4) III. Mr. Powell

Prerequisite: History 8A–8B or consent of instructor.

Tutorial guidance in individual reading programs and seminar discussions.

8Q(S). Topical Studies in Western Hemisphere. (1) III. The Staff

After 8Q begins, selected students will be invited to enroll in the honors seminar. Such students will receive one unit for the honors seminar, 8QS, or a total of five units for 8Q.

17A–B. American Politics and Culture. (4–4) I, II. The Staff

The leading issues in American life from the Colonial Era to the present.

For ways of satisfying the requirement in American History and Institutions, see page 53.

17A(S)–17B(S). American Politics and Culture. (1–1) I, II. The Staff

After History 17A–B begins, selected students will be invited to enroll in the honors seminar. Such students will receive one unit for the honors seminar (17S) or a total of five units for History 17.

19A–B. Asian Civilizations. (4–4) I, II. The Staff

A. A survey of East Asian civilization.

B. A survey of South Asian, Southeast Asian, and Middle Eastern civilizations.

101A–B. History of the Chicanos. (4–4) I, II. Mr. Chavarria

The history of the Chicanos, 1821 to the present; traces the social-cultural lifeline of the Mexicans who have lived north of Mexico.

101Q. Special Studies in Chicano History. (4) III. Mr. Chavarria

Studies in selected aspects of Chicano history with an emphasis on social and economic history.

102. European Historiography. (4) I, II, III. Mr. Friesen

Prerequisite: History 4A–B–C, or equivalent.

The study of the development of history as an independent discipline and the influence of intellectual and other trends or events upon the interpretation of history from the Greeks to the Moderns.

105. The Atomic Age. (4) I. Mr. Badash

The history of military and civilian uses of nuclear energy and the attendant problems. Topics included: Manhattan Project, decision to use the bomb, legislation, AEC, arms race, testing, fallout, civil defense, disarmament efforts, reactors, atoms for peace, foreign programs, espionage.

History 106A. The Origins of Western Physical Science, Antiquity–1600. (4) I. Mr. Badash

The development of astronomy, physics, chemistry, and the organization of science, traced from Babylonian times through the Greek, Roman, Islamic periods, and the Middle Ages in the West, to the scientific Renaissance. Emphasis on the growth of scientific ideas.

History 106B. The Scientific Revolution, 1600–1875. (4) II. Mr. Badash

The establishment of heliocentric astronomy and mechanical philosophy by Galileo, Newton, and others, the creation of scientific societies and periodicals, the rise of chemical and electrical science, the influence of science upon the Enlightenment, physical science survey in 18th and 19th centuries.

History 106C. Modern Physical Science, 1875–Present. (4) III. Mr. Badash

The Second Scientific Revolution, including the discoveries of x-rays, radioactivity, the electron, relativity, and quantum theory; the growth of atomic and nuclear physics and of quantum mechanics; aspects of astronomy, chemistry, Nazi science, scholars' migration, and discovery of nuclear fission.

107. History of University and Society. (4) I, III. Mr. Shirk

A study of the origins, nature, and development of the university and other similar institutions, their relationship to society, from ancient times to the 20th century, in the western and non-western world.

110. Ancient Near East. (4) III. Mr. Haddad

Study of Near Eastern civilizations from the Stone Age to the end of the Persian empire. Political history and cultural contributions of the Sumerians, Assyro-Babylonians, Egyptians, Hittites, Canaanites, Hebrews, Aramaeans and Persians.

History 111A–B. History of Greece. (4–4) I, II. Mr. Frost

111A. From Neolithic times to Alexander the Great.

111B. From the death of Alexander to the reign of Justinian.

112. The Ancient Aegean. (4) III. Mr. Frost

Prerequisite: upper division standing or instructor's consent.

Pre-history and archaeology of the early Aegean littoral, from Mycenae to the Lyric Age.

113A–B. Roman History. (4–4) II, III. Mr. Drake

113A. From Neolithic times to the fall of the Republic.

113B. The Roman Empire.

113Q. Special Studies in Roman History. (4) III.

Prerequisites: History 113AB or consent of instructor.

115. Medieval Europe, 300–1050. (4) I. Mr. Hollister

Prerequisite: History 4A–B–C, or equivalent.

The political, economic, and cultural evolution of Europe from the time of Constantine to the mid-eleventh century.

116. Medieval Europe, 1050–1350. (4) II. Mr. Hollister

Prerequisite: History 4A–B–C, or equivalent.

European civilization during the High Middle Ages. The struggle between Church and State, the rise of feudal monarchies, the revival of commerce, and the flowering of medieval culture.

119. History of Scandinavia. (4) I.

Prerequisite: History 4A–B–C, or consent of instructor.

The social, economic, cultural and political development of the Scandinavian countries from their origins to the present.

120A–B. Renaissance-Reformation. (4–4) I, II, III. Mr. Friesen

Prerequisite: History 4A–4B–4C, or equivalent.

The political, economic, and cultural evolution of Europe, 1300–1648.

121A–B. History of Europe in the Seventeenth and Eighteenth Centuries. (4–4) I, II.

Prerequisite: History 4BC or consent of the instructor.

121A. 1600–1715, political, social, economic, diplomatic, intellectual history in comparative and national contexts.

121B. 1715–1815, Enlightenment, Enlightened Despotism, French Revolution and Napoleon.

122A–B–C. History of Europe from the Eve of the French Revolution to 1919. (4–4–4) I, II, III. Mr. Remak

Prerequisite: History 4A–B–C or equivalent.

A political, economic, cultural, and diplomatic history of Europe from the Enlightenment to the end of the First World War.

123A–B. History of Europe in the Nineteenth and Twentieth Centuries. (4–4) II, III. Mr. Adams

Prerequisite: History 4A–B–C, or equivalent. History 123A is prerequisite to History 123B.

European civilization in the nineteenth and twentieth centuries; inter-relationship of the centuries and of Europe to the world.

124A–B. Economic History of Modern Europe. (4–4) II, III. ———

Prerequisite: History 4A–B–C.

A study of the growth of economic thought and institutions in the society and politics of modern Europe.

125A–B. Intellectual History of Modern Europe. (4–4) I, II. Mr. Marsak

Prerequisite: a year course in European history. History 125A is prerequisite to 125B.

A history of scientific ideas and ethical systems from Francis Bacon to the present.

125Q. Special Studies in Intellectual History. (4) III. Mr. Marsak

Prerequisite: History 125A and 125B.

Main currents of contemporary thought. Limited in enrollment to fifteen students.

126A–B. European Intellectual & Cultural History in the Nineteenth & Twentieth Centuries. (4–4) I, II, III. Mr. Alexander

Prerequisites: A general knowledge of modern European history.

A study of European thought and its relation to the contemporary society during the nineteenth and twentieth centuries.

126Q. Colloquium in Intellectual & Cultural History of Europe in the Nineteenth & Twentieth Centuries. (4) II, III. Mr. Alexander

Prerequisites: Admission by consent of instructor. Enrollment limited to 12 students.

A discussion of special topics in modern European thought and culture, with emphasis varying each year.

127A–B. History of European Socialism, 19th and 20th Centuries. (4–4) II, III. Mr. Shirk

Special emphasis on Marxism, its origins and competitors; the relationship of Leninism to orthodox Marxism; the development of Stalinist Communism; the deterioration of socialist ideology as a political force.

128A–B. Twentieth Century Europe. (4–4) I, II. Mr. Remak

A political, economic, cultural, and diplomatic history of Europe from the First World War to the present.

128Q. Special Studies in Twentieth Century Europe. (4) III. Mr. Remak

Prerequisites: History 128AB; admission by permission of instructor.

Special topics in European history from World War I to present.

129A–B–C. Europe in the 17th Century. (4–4–4) I, II, III. Mr. Sonnino

Economic, social, political and intellectual history of the 17th century. Students who have taken History 129A–B may take the third quarter as History 129Q and petition to have the course accepted in lieu of History 195.

History 129Q. Europe in the 17th Century. (4) II. Mr. Sonnino

Offered simultaneously with History 129C. Students may petition to have this course approved as a substitute for the required History 195.

130A–B. Modern Italy. (4–4) I, II. Mr. Limoli

Prerequisite: History 4A–B–C, equivalent, or consent of the instructor.

A survey of modern Italian history: the Risorgimento and unification of Italy, the parliamentary state and society of the liberals, 1860–1922, the Fascist era, the post-war republic and Italian "rebirth."

130Q. Studies in Modern Italian History. (4) III. Mr. Limoli

Prerequisite: Consent of instructor.

Studies in selected aspects of modern Italian history, from political and social to cultural and intellectual. A discussion course limited to 12 students.

131A–B–C. France in the Nineteenth Century. (4–4–4) **I, II, III.** Mr. Talbott

Prerequisite: History 4A–B–C.

Stressing the political and cultural history of France, as well as her role in international affairs.

132. Studies in Modern Imperialism & Colonization. (4) I, II, III. Mr. Alexander

Prerequisite: Enrollment is limited to twenty students by consent of the instructor.

Selected studies of modern colonial societies emphasizing the intellectual and psychosocial issues raised by the meetings of different cultures. Perspectives of the colonizers and colonized will be examined; this will include works by such writers as Fanon, Memmi and Mannoni.

133A–B–C. History of Prussia and Germany since 1500. (4–4–4) I, II, III. Mr. Adams

Prerequisites: History 4A–B–C or equivalent.

The political, socio-economic, and cultural developments in Germany since the 16th century.

134A–B. Russian Intellectual History. (4–4) II, III.

Prerequisite: History 4A–B–C.

134A: From the introduction of Christianity to the mid-nineteenth century.

134B: From the mid-nineteenth century to the present.

135A. History of Russia: Origins to 1800. (4) I.

Prerequisite: History 4A–B–C or equivalent, or consent of the instructor.

History 135B. History of Russia: 1800 to 1917. (4) II.

Prerequisite: History 4A–B–C or equivalent, or consent of instructor.

History 135C. History of Russia: 1917 to Present. (4) III.

Prerequisite: History 4A–B–C, or equivalent, or consent of instructor.

136A. History of the Eastern Baltic and East Central Europe in the Nineteenth Century. (4) I. Mr. Djordjevic

Prerequisite: History 4A–B–C, or equivalent, or consent of the instructor.

Imperialism versus nationalism: the Finns, the Estonians, the Latvians, the Lithuanians, and the Poles in the Russian Empire. The political, economic, and social history of the Habsburg Monarchy.

136B. History of the Eastern Baltic and East Central European Countries in the Twentieth Century. (4) II. Mr. Djordjevic

Prerequisite: History 4A–B–C, or equivalent, or consent of the instructor.

The emergence of independent Finland, Estonia, Latvia, Lithuania, Poland, Czechoslovakia, Hungary, and the republic of Austria. A survey of their political, economic, and social development during the interwar period; the Second World War and its aftermath.

136C. History of the Balkans in the Nineteenth and Twentieth Centuries. (4) III. Mr. Djordjevic

Prerequisite: History 4A–B–C, or equivalent, or consent of the instructor.

The Romanians, the Serbs, the Bulgarians, the Greeks, and the Albanians in the Ottoman Empire and their struggle for independence. The First World War and the peace settlement, the interwar period, the Second World War and its consequences.

140A–B. Early Modern Britain. (4–4) I, II.

A history of England from the late Middle Ages to the 18th Century.

141A–B. History of Britain in the 19th and 20th Centuries. (4–4) II, III. Mr. Gollin

145A–B. The Middle East in the Middle Ages. (4–4) I, II. Mr. Haddad

Prerequisite: History 4A–B–C or equivalent.

The Christian and Muslim world 395–1453, including a study of the history and civilization of the Islamic countries, and the neighboring Byzantine Empire.

146A–B. History of the Middle East in the Nineteenth and Twentieth Centuries. (4–4) I, II.

The Ottoman Empire and the Eastern Question. Reform movements, cultural and national awakening, and the impact of the West in Iran, Turkey and the Arab countries. Evolution of the Middle Eastern states until the present time.

148A–B. History of Tropical Africa. (4–4) I, II.

The history of Tropical Africa from the earliest times to the granting of independence.

148Q. Special Studies in Africa. (4). III.

Prerequisite: Consent of Instructor.

Selected problems and themes in African history, chosen by consultation between instructor and students. This seminar will provide more advanced perspectives on the offerings in History 148A and B and History 149.

149. History of South Africa. (4) III.

A history of Africa south of the Limpopo from the Iron Age to the present.

150A–B. Spain and Spanish Empire. (4–4) I, II. Mr. Powell

Prerequisite: Upper division standing or permission of instructor.

150A. Medieval Spain, to 1516.

150B. From 1516 to the present.

151A–B–C. Hispanic-American History. (4–4–4) I, II, III. Mr. Dozer

Prerequisite: History 8A–B–C or upper division standing.

151A. Colonial background and the winning of independence.

151B. Struggle toward nationality, cultural developments, and international relations of the Hispanic-American countries during the nineteenth century.

151C. History of the Hispanic-American nations during the twentieth century.

152B. Intellectual History of Spanish America: Modern Period. (4) I, II, III. Mr. Chavarría

Prerequisites: History 8A–B–C recommended.

Focuses on the impact of intellectuals and ideas—liberalism, romanticism, positivism, socialism—on Spanish American society in 19th and 20th centuries.

155A–B. Portugal and the Portuguese Empire. (4–4) I, II, III. Mr. Dutra

155A. A general survey of Portugal from its origins to the present, a political, social, and cultural history.

155B. Emphasis on Brazil, Africa and the Far East, 1415–1825.

156A–B. History of Mexico. (4–4) I, II. Mr. Powell

Prerequisite: Upper division standing or permission of instructor.

156A. From Spanish Conquest to the end of the eighteenth century.

156B. The nineteenth and twentieth centuries.

157A–B. History of Brazil. (4–4) I, II. Mr. Dutra

A general survey of the history of Brazil in two quarters: 157A. From the discovery of the New World to the formation of the Empire.

157B. Modern Brazil.

158A–B. History of Inter-American Relations. (4–4) I, II. Mr. Dozer

Prerequisite: History 8A–B–C or upper division standing.

158A. History of relations between and among the American nations from independence to 1900.

158B. History of inter-American relations and the Pan-American movement since 1900.

159. History of American Women. (4) III. Mr. Marshall

Investigation of place and image of women in different periods of American history.

History 160A. The American South to 1861. (4) II. Mr. Harris

The origins and development of distinctive economic, social, political, and cultural patterns in the ante-bellum South.

History 160B. The American South, 1865 to the Present. (4) III. Mr. Harris

Change and resistance to change in Southern economic, social, political, and cultural life since the Civil War.

161. Colonial and Revolutionary America. (4) I, II. Mr. Jacobs

Prerequisite: Upper Division standing.

Political, cultural, and social history of the thirteen colonies, their neighbors, westward expansion, and the American Revolution.

162A–B. The United States: The New Nation. (4–4) I, II. Mr. Borden

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

History of the United States from the close of the American Revolution to the Era of Good Feelings, with emphasis on the creation of a federal government, the rise of political parties, and the emergence of national character.

163A–B. Jacksonian America. (4–4) I, II. Mr. Marshall

Prerequisite: History 17A–B or equivalent.

The genesis and fruition of this fundamental reorganization in American society, focusing on development of new democratic political organization and leadership roles. Includes related new departures in religious and economic affairs, foreign policy, and literature.

164A. Comparative Slave Societies. (4) I, II. Mr. Bonadio

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

164B. Civil War and Reconstruction, 1860–1876. (4) II. Mr. Bonadio

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

165. The United States: 1876–1900. (4) III. Mr. Harris

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

166A–B. Recent History of the United States. (4–4) II, III. Mr. Buchanan, Mr. Graham

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

Political, economic, and social development of the United States from 1900 to the present time.

166Q. The Historical Background of Contemporary Problems. (4) III. Mr. Graham

Prerequisite: Consent of the instructor.

Special studies in recent American history: the historical background of contemporary problems.

167A. History of the American Economy to 1861. (4) I. Mr. Brownlee

A survey of American economic life to the Civil War, including European expansion, establishment of the British colonial economy, development of the colonial economy, and early industrialization, from the point of view of U. S. economic growth.

167B. History of the American Economy from 1861. (4) II. Mr. Brownlee

A survey of American economic development from the Civil War, emphasizing the growth and instability of the economy. The course will include consideration of broad social determinants of economic change with special reference to public policy.

168. History of American Economic Thought. (4) III. Mr. Brownlee

History of economic thought in America, examining the relationships among economic thought, public policy, and economic change from early colonization to the establishment of the modern industrial state.

169A–B. History of the Afro-American. (4–4) I, II, III.

The Negro in United States history, from the era of colonization to the present. Stress will be placed on the reciprocal relation of the Negro and the American social order.

170A–B. American Constitutional History. (4–4) I, II.

Prerequisite: History 17A–B or equivalent.

The development of the American constitutional system from the Colonial period to the present. Emphasis on the role of the Supreme Court and the growth of the modern Presidency.

171A–B. History of the Foreign Relations of the United States. (4–4) I, II. Mr. DeConde

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

171A. The theory and practice of American foreign policy from colonial times to 1900.

171B. Analysis of twentieth-century developments. Emphasis on broad policy, concepts and ideas.

172A–B. American & British Intellectual History. (4–4) I, II. Mr. Kelley

The history of ideas in America and Britain concerning God, man, nature and society, from the Age of Elizabeth to recent times. Explores the nature of the transatlantic intellectual community, stressing comparative studies and shared influences.

172Q. Studies in American & British Intellectual History. (4) III. Mr. Kelley

Prerequisite: History 172A–B with a grade of "B" or higher.

A reading and discussion course, limited in size to ten students.

173A–B. American Social & Intellectual History (4–4) I, II. Mr. Nash

Prerequisite: History 17A–B, an equivalent course, or consent of instructor.

173A. Traces the origins, influence, and modification of ideas, attitudes, and social institutions through the Civil War. Focuses on the perfectionist impulse, religion, the nature of slavery, implications of democracy, and the development of American nationalism.

173B. Emphasizes Darwinism, social Darwinism, pragmatism, socialism, and the effect on industrialization, urbanization, and the First World War on American thought. Special attention to social problems and intellectual currents since 1945.

173C. American Environmental History (4) III. Mr. Nash

Traces three centuries of changing American attitude toward the natural environment with an emphasis on the rise of the conservation movement.

174A–B. History of American Technology. (4–4) I, II. Mr. Pursell

Prerequisite: History 17A–B.

Social history of devices and techniques, from handicraft through mass-production to automation; invention, innovation, scientific research, and organization in such areas as agriculture, manufactures, transportation, warfare, and the urban environment.

174C. Social History of American Science. (4) III. Mr. Pursell

The social role of science and scientists in America from the Puritans to the present. Emphasis on social behavior, institutions, public policy and the interrelations of the scientific culture with the larger American context.

174Q. Studies in the History of American (4) III. Mr. Pursell

Prerequisite: History 174A–B, or permission of instructor.

A reading and discussion course, with a limited enrollment.

175A–B–C. American Cultural History. (4–4) I, II, III. Mr. Kirker

Prerequisite: None.

The origin and development of a national character and culture since 1607; emphasis is upon the arts and their inter-relationships.

176A–B. The American West. (4–4) I, II. Mr. Oglesby

Prerequisite: History 17A–B, an equivalent course, or consent of the instructor.

The West as a frontier and as a region, in transit from the Atlantic seaboard to the Pacific, and from the seventeenth century to the present.

177. History of California. (4) I, II, III. Mr. Oglesby

California as a case study of national trends, and as an unique setting with its special problems and culture.

178A–B. American Urban History. (4–4) II, III. Mr. Callow

Prerequisite: History 17A–B or equivalent.

A study of the political, economic, social, and intellectual impact of the city upon American history, and the impact of history upon the growth of American urbanization.

178Q. Studies in American Urban History. (4) III. Mr. Callow

Prerequisites: History 178A–B or consent of the instructor.

A reading and discussion course limited in size to ten students.

179. The Indian and the American Frontier: Ideas and Interpretations. (4) III. Mr. Jacobs

Prerequisite: Upper division standing.

The role of the American Indian in United States history. A study of historical thought and interpretation concerning main currents of national development and the origins of American attitudes and policies toward the Indian.

180. Southeast Asian History. (4) III. Mr. Hay

A survey of the history of the countries of Southeast Asia (Burma, Thailand, Malaysia, Vietnam, Indonesia, the Philippines, Cambodia, and Laos). A research paper will be required. Not for pass-fail students.

181A. South Asia in the 19th Century. (4) I. Mr. Hay

Prerequisite: 19B.

Introduction to political, intellectual and socioeconomic history of South Asia (present-day India, Pakistan, Afghanistan, Nepal, and Ceylon). Consolidation of British rule and penetration of Western ideas and institutions, followed by rise of Indian nationalism and Hindu and Muslim cultural movements, are some of main themes treated.

181B. South Asia in the 20th Century. (4) II. Mr. Hay

Prerequisites: 19B, 181A.

An analytical survey of political, intellectual and socio-economic developments, emphasizing the causes of the 1947 partition of British India into India and Pakistan, the career and ideas of Gandhi, and problems of economic development and social change.

185A–B. Modern China. (4–4) I, II. Mr. Hsu

185A: From 1600 to 1900.
185B: From 1900 to date.

186A–B. History of China. (4–4) I, II. Mr. Chen

186A: Ancient China.
186B: Medieval China.

187A–B. History of Japan. (4–4) I, II. Mr. Lamberti

A survey of Japan from its origins to the present. Political, social and cultural history.

188A–B. Japan: Tradition and Modernization. (4–4) II, III. Mr. Lamberti

Prerequisite: History 187A–B or instructor's permission.

Analysis of the role of traditional Japanese institutions and values in the process of modernization. Emphasis on social rather than political trends. 188A is prerequisite to 188B.

190. Problems in Chinese History. (4) III. Mr. Chen

Studies of selected topics of traditional China.

192. Truth and Fiction: a Century of German History in Literature. (4) I. Mr. Remak
Mr. Exner

Prerequisite: Upper division course in modern Europe or in German literature.

German history, 1870–1971, as reflected in German literature. [Tentative list of authors to be read: Fontane, Grillparzer, George, Hofmannsthal, Roth, Plievier, Brecht, Hochhuth, Johnson.]

195 E, AM, LA, AS, AF. The Methods of History. (4) I, II, III, IV. The Staff

Prerequisite: Upper division major in history or consent of the instructor.

E: Europe; AM: America; LA: Latin America; AS: Asia; AF: Africa. Required of all history majors, but may be waived for students who have taken Q courses requiring a major paper. (Q course instructors petition to have the 195 requirement waived for students in their courses.) A research seminar which trains the students in historical research methods. The seminar will generally concentrate in the area of the instructor's main field of interest and a research paper will be written. May be taken more than once.

199. Independent Studies. (1–5) I, II, III. The Staff

Student must have completed 125 units with 3.0 grade point average, and must be a major in history or present justification to both the instructor and the department for diverting from this norm. A maximum of 12 units will be allowed during the undergraduate course of study. The description of any one 199 must not be identical to any existing course description.

Graduate Courses

200E, AM, LA, AS, AF. Historical Literature. (4) I, II, III, SS. The Staff

E: Europe; AM: America; LA: Latin America; AS: Asia; AF: Africa. A reading course in a general field of history, within which the professor's specialization lies. Introduces the student to the sources and general literature of the field in question. Particularly designed to meet the needs of M.A. candidates as well as those Ph.D. candidates seeking broad preparation. Written work as prescribed by the instructor. May be taken more than once.

201E, AM, LA, AS, AF. Advanced Historical Literature. (4) I, II, III, SS. The Staff

E: Europe; AM: America; LA: Latin America; AS: Asia; AF: Africa. A reading course in a field of the professor's specialty. Introduces the student to the sources and literature of the field in question. Written work as prescribed by the instructor. May be taken more than once. Open to both M.A. and Ph.D. candidates.

202. European Historiography. (4) I. Mr. Adams

The nature of history and historical writing as revealed by the major historians of European civilization since the Greeks.

203. American Historiography. (4) III. Mr. Jacobs

Unless otherwise noted, students must take all of the following courses for two consecutive quarters.

204. Historiography & Philosophy of History. (4) I, II. Mr. Marsak

Emphasis upon studies in the philosophy of history, and the study of history as a branch of learning. A long research paper will be prepared. This is a one-quarter seminar.

205. Research Seminar in Comparative History. (4) I, II, III. Mr. Kelley

Study and use of new methodologies in comparative history. Students will prepare research papers in fields appropriate to their competence.

211. Seminar in Greek History. (4) I, II, III. Mr. Frost

Prerequisite: reading knowledge of French, German or Italian.

Research seminar in Greek history. From time to time the seminar will be limited to candidates specializing in ancient history, and with a reading knowledge of Classical Greek.

213. Seminar in Roman History. (4–4) II, III. Mr. Drake

Prerequisite: Reading knowledge of appropriate foreign language. Selected topics in the history of the Roman Republic and Empire, with particular emphasis on problems of the Later Roman Empire.

215. Seminar in Medieval History. (4) II. Mr. Hollister

Prerequisite: History 116: Medieval Europe, 1050–1350.

219. Seminar in Scandinavian History. (4) I, II, III.

Prerequisite: Knowledge of French, German or a Scandinavian language.

Selected topics in the history of Scandinavia, principally between the 17th and 19th centuries. This is a one-quarter seminar.

220. Seminar in Renaissance-Reformation. (4) I, II, III. Mr. Friesen

Prerequisite: reading knowledge of one Western European language besides English.

Research seminar, stressing problems in comparative European social and intellectual history, 1450–1650.

222. Seminar in 18th Century European History. (4) II.

Prerequisite: Graduate standing or permission of professor in charge.

Selected topics in the history of Europe, 1715–1815.

223. Seminar in Modern European History. (4) II, III. Mr. Adams, Mr. Remak

Prerequisite: graduate standing.

May be taken more than once.

225. Research Seminar in the Idea of Progress. (4) II. Mr. Marsak

Prerequisite: a reading knowledge of at least one foreign language.

226. French Intellectual History. (4) II, III.
Prerequisite: History 201. Mr. Marsak
The idea of reason in 17th century France.

227. Research Seminar in European Socialism, 19th & 20th centuries. (4–4) I, II. Mr. Shirk

229. Seminar in 17th Century European History. (4–4) I, II, III. Mr. Sonnino

231. Seminar in Modern French History. (4) II, III.

235. Seminar in Russian History. (4) I, II.
Prerequisite: Reading knowledge of Russian, German or French, or consent of the instructor.

236. Seminar in Southeast European History. (4) I, II, III. Mr. Djordjevic

237. Seminar in Modern German History. (4) II, III. Mr. Remak

240. Seminar in Tudor-Stuart History. (4) I.
Research seminar in Tudor-Stuart history: select topics requiring use and interpretation of primary sources.

241. Seminar in Modern British History. (4) II, III. Mr. Gollin
Research seminar.

242. Seminar in Early 20th Century British History. (4–4) I, II, III. Mr. Dangerfield

246. Seminar in the Modern History of the Middle East. (4) II. Mr. Haddad
Prerequisite: History 146A or 146B.
Research seminar stressing the movements of nationalism, revolution and change that have characterized the modern history of the Middle East since 1850.

248. Research Seminar in African History. (4) III. Mr. Collins
Prerequisite: History 201.
History 248 is designed to provide the graduate student with the opportunity to explore in depth one or more of the subjects with which he has become acquainted in History 201.

250. Seminar in Spain and Spanish Empire. (4–4) II, III. Mr. Powell
Prerequisite: Graduate standing or permission of professor; reading knowledge of Spanish.

252. Seminar in Social and Intellectual History of Modern Latin America. (4–4) II, III. Mr. Chavarría
Prerequisite: History 201; History 151B–C; History 152B or permission of instructor.
Seminar on nationalism in Latin America.

256. Seminar in Mexican History. (4–4) II, III. Mr. Powell
Prerequisite: Graduate standing or permission of professor; reading knowledge of Spanish.

257. Seminar in Luso-Brazilian History. (4) I, II, III. Mr. Dutra
Research seminar with particular stress on Portuguese, Spanish and Brazilian archival materials. Course will provide the graduate student with opportunity to analyze problems in the history of Portugal and her overseas empire with special emphasis on Brazil.

258. Seminar in the History of Inter-American Relations. (4) III. Mr. Dozer
Prerequisite: reading knowledge of a foreign language, preferably Spanish, Portuguese or French.

259. Seminar in Recent Hispanic-American History. (4) I, II. Mr. Dozer

260. Seminar in American South. (4–4) II, III. Mr. Harris
Research in 19th and 20th century Southern history.

261. Seminar in Colonial America and the West. (4) I, II. Mr. Jacobs

262. Seminar in Early National Period of United States History. (4) I, II, III. Mr. Borden

263. Seminar in Jacksonian America. (4) I, II, III. Mr. Marshall
Guided research, and discussion, in the history of Jacksonian America.

History 264. Seminar in Civil War and Reconstruction. (4–4) I, II, III. Mr. Bonadio

265. Research Seminar in the History of the United States in the Late 19th Century. (4–4) I, II, III.

266. Seminar in Recent History of the United States. (4) I. Mr. Buchanan

267. Seminar in American Economic History. (4) II, III. Mr. Brownlee
This is a one-quarter course.

269. Seminar in American Urban History. (4–4) II, III. Mr. Callow

270. Seminar in American Constitutional History. (4) III.
Prerequisite: Winter quarter of 201, or consent of the instructor.
Research in judicial review in American history.

271. Seminar in Diplomatic and Political History of the United States. (4–4) II, III. Mr. DeConde

272. Seminar in American & British Intellectual History. (4–4) I, II, III. Mr. Kelley

273. Research Seminar in American Social & Intellectual History. (4–4) I, II, III.
Mr. Nash

274. History of Science and Technology in America. (4) I, II, III. Mr. Pursell

Prerequisite: Consent of the instructor.

Research seminar emphasizing the social aspects of selected topics in the history of science and technology in America.

275. American Cultural History. (4–4) I, II, III. Mr. Kirker

276. Seminar in American West and California. (4–4) I, II. Mr. Oglesby

278. Science in Twentieth Century America. (4) I, II, III. Mr. Badash

The atomic age—the background to the atomic bomb, its development, use, and postwar problems.

280. Seminar in Modern China. (4) III.

Prerequisite: History 185A–B. Mr. Hsu

A research seminar in the important aspects of modern Chinese history.

281. Politics and Culture in the Gandhian Era. (4) I, II, III. Mr. Hay

Prerequisite: History 181A–B.

A research seminar devoted to the period 1919–1948 in the history of India and Pakistan.

285. Seminar in United States Relations with the Far East. (4) III. Mr. Hsu

Prerequisite: History 185A–B, or 187A—B.

A research seminar, with particular stress on the use of archival materials. The role of the United States in the development of the Modern Far East is emphasized.

288. Seminar in the Modernization of Japan. (4) II, III. Mr. Lamberti

A research seminar in the important aspects of modern Japanese history. This is a one-quarter course.

596AA–596ZZ. Directed Reading and Research. (2–4) I, II, III. Staff

Prerequisite: Graduate standing and consent of the instructor.

Individual tutorial. Instructor usually students' major professor. Letter grade. Minimum of 2 units per quarter. Each faculty member has an unique letter designation, which is the same as in the 599 series.

History 598AA–598ZZ. Master's thesis research & preparation. (2–6) I, II, III.
The Staff

Prerequisite: Graduate standing and consent of the instructor.

Only for research underlying the thesis, writing the thesis. Instructor should be the chairman of the student's thesis committee.

Each faculty member has an unique letter designation, which is the same as in the 599 series.

599AA–599ZZ. Ph.D. Dissertation Preparation. (2–6) I, II, III. The Staff

Prerequisite: Graduate standing and consent of the instructor.

Only for writing the dissertation. Instructor should be the chairman of the student's doctoral committee. Each faculty member has an unique letter designation, as follows:

HA Henry M. Adams; MB Morton Borden; RB A. Russell Buchanan; RC Robert O. Collins; AD Alexander DeConde; DD Dimitrije Djordjevic; DM Donald M. Dozer; AG Alfred M. Gollin; GH George M. Haddad; WH C. Warren Hollister; IH Immanuel C. Y. Hsu; WJ Wilbur R. Jacobs; RK Robert L. Kelley; HK Harold Kirker; LM Leonard M. Marsak; PP Philip W. Powell; JR Joachim Remak; FB F. A. Bonadio; AC Alexander B. Callow; FF Frank J. Frost; OG Otis L. Graham; SH Stephen N. Hay; RN Roderick W. Nash; RO Richard E. Oglesby; CP Carroll Pursell; PS Paul M. Sonnino; LB Lawrence Badash; EB W. Elliot Brownlee; JC Jesus Chavarria; CC Chi-Yun Chen; FD Francis A. Dutra; AF Abraham Friesen; CH Carl V. Harris; ML Matthew V. Lamberti; DL Donald A. Limoli; LL Lyn L. Marshall; AS Albert E. Shirk; WA William H. Alexander; GD George Dangerfield; JT John E. Talbott; MR Joan M. Reitzel; SM J. Sears McGee; JM James C. McClelland.

HOME ECONOMICS

Evelyn M. Jones, Ph.D., *Professor of Home Economics (Chairman of the Department).*
Marion P. Alves, M.A., *Professor of Home Economics, Emeritus.*
Charlotte E. Biester, Ed.D., *Professor of Home Economics, Emeritus.*
Ruth Major, Ph.D., *Professor of Home Economics, Emeritus.*
Florence C. Meredith, M.A., *Professor of Home Economics, Emeritus.*
Paul L. Scherer, Ed.D., *Associate Professor of Home Economics.*
Lucille A. Woolsey, Ph.D., *Associate Professor of Home Economics.*

◆

Marianne W. Elliott, M.S., *Lecturer in Home Economics.*
Eleanor H. Mathewson, M.A., *Lecturer in Home Economics.*
Frances R. Tacionis, M.A., *Lecturer in Home Economics.*
Ruth E. Shook, B.A., *Associate in Home Economics.*

The Board of Regents of the University of California has determined that the Home Economics Program at Santa Barbara will be discontinued. Instruction in Home Economics will be phased out by accepting its last freshman class in the fall quarter, 1969, and it will come to a close in the spring quarter, 1973. Students who have not graduated by 1973 will be able to complete the degree in Home Economics at the Davis campus. The schedule as stated below is for the guidance of students and counselors:

Fall quarter 1971—latest date of admission for junior students.

Fall quarter 1972—latest date of admission for senior students.

THE MAJORS

Three majors are offered in home economics: Foods and Nutrition, Textiles and Clothing, and General Home Economics. Students who wish to qualify for membership in the American Dietetic Association should complete the Foods and Nutrition major. The General Home Economics major is required for teaching credentials.

Foods and Nutrition

Preparation for the Major—Required: Art 1 (or 150), Biology 1A (or 20), 104A, 118, Chemistry 1A–B–C and Chemistry 1AL–BL–CL, 8 A–B (or 130A–B–C), Economics 2 (or 109), Home Economics 10, 13, 20, Philosophy 1, Psychology 1 (or 101), Sociology 1 (or 101), Speech 11 (or 101), Zoology 40, and 40L.

Requirements for the Major—Fifty-four units of home economics of which at least 36 must be in upper division. Required: Home Economics 100A–B, 100C (or 102), 101, 103A–B, 104 (or 136), 135, 137 (or 148), 144 (or 145). To qualify for membership in the American Dietetic Association, students must consult their adviser for specific requirements.

Textiles and Clothing

Preparation for the Major—Required: Anthropology 2, Art 1 (or 150), Biology 1A, 1AL, (or 20), Chemistry 1A, 8A–B (or 130A–B–C), Economics 2 (or 109), Home Economics 10, 13, 20, Philosophy 1, Psychology 1 (or 101), Sociology 1 (or 101), Speech 11 (or 101), Zoology 40, and 40L.

Requirements for the Major—Fifty-four units of home economics of which at least 36 must be in upper division. Required: Home Economics 105A–B, 105C (or 120), 114, 116, 144, 146, 148, 173.

General Home Economics

Preparation for the Major—Required: Art 1 (or 150), Biology 1A, 1AL (or 20), Chemistry 1A, 1AL, 8A–B (or 130A–B–C), Economics 2 (or 109), Health 108 (or Sociology 154), Home Economics 10, 13, 20, Philosophy 1, Psychology 1 (or 101), Sociology 1 (or 101), Speech 11 (or 101), Zoology 40, and 40L.

Requirements for the Major—Fifty-four units of home economics of which at least 36 must be in upper division. Required: Home Economics 100A, 104, 105A, 144, 148, 150, 151, 171. To qualify for a teaching credential, students must elect Home Economics 100B, 105B, 133, 149.

The Minor

Required: Home Economics 10, 13, 20, 100A, 105A, 144, 148 and three units chosen with the approval of the department chairman. Students wishing a minor in home economics should consult the department chairman before enrolling as a minor.

Graduate Program

The department offers work which will meet the requirements for graduate units for teaching credentials and for the Master of Arts in Education (Teaching Emphasis).

TEACHING CREDENTIALS

Either a major or a minor in home economics may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. Detailed information is given in *The Graduate School of Education Announcement.*

HOME ECONOMICS

Lower Division Courses

10. Elements of Nutrition. (3)I. Miss Jones

Science of human nutrition with emphasis on food supplies and food selection.

13. Child Development. (4) I, II, III. Mrs. Elliott

Physical, emotional and social needs of the infant and young child in relation to his membership in the family. Observations of infants and young children.

20. Textiles. (4) I, III. Miss Tacionis

Prerequisite: Chemistry 8B (or 130C).

A study of fibers, fabrics and finishes.

Upper Division Courses

100A. Foods. (5) I. The Staff

Prerequisite: Chemistry 8B (or 130C), Economics 2 (or 109), Home Economics 10.

Chemical, enzymatic and physical principles involved in food preparation; esthetic, economic and nutritional aspects of food selection and service.

100B. Foods. (4) II. The Staff

Prerequisite: Home Economics 100A.

Continuation of Home Economics 100A.

100C. Foods. (4) I. The Staff

Prerequisite: Home Economics 100B.

Study of the nutritional significance of the food patterns in different cultures with consideration of social, cultural and economic conditions.

101. Food Analysis. (3) III. Miss Jones

Prerequisite: Home Economics 100B.

Chemical and microbiological assay of foods.

102. Experimental Food Study. (4) III. Miss Mathewson

Prerequisite: Home Economics 100B.

Physical, chemical and organoleptic analysis in food research.

103A. Human Nutrition. (4) I. Miss Jones

Prerequisite: Biology 118, Home Economics 10, Zoology 40, 40L or consent of instructor.

Metabolism of carbohydrates, fats and proteins in relation to normal nutritional requirements and food intakes.

103B. Human Nutrition. (4) II. Miss Jones

Prerequisite: Home Economics 103A.

Metabolism of vitamins, minerals and water in relation to normal nutritional requirements and food intakes.

103C. Human Nutrition. (4) III. Miss Mathewson

Prerequisite: Home Economics 103B.

Modification of the normal diet necessitated by pathological conditions and metabolic diseases.

104. Equipment. (3) III. The Staff

Prerequisite: Home Economics 100A.

Physical principles, materials and economic considerations underlying the selection of household equipment.

105A. Clothing. (5) I. Miss Tacionis

Prerequisite: Art 1 (or 150), Home Economics 20, Psychology 1 (or 101), Sociology 1 (or 101).

Sociological, psychological and esthetic aspects of clothing as related to design and construction.

105B. Clothing. (4) II. The Staff

Prerequisite: Home Economics 105A.

A comparative study of clothing through analysis, experimentation and creative design.

105C. Clothing. (4) III. Mrs. Woolsey

Prerequisite: Home Economics 105B.

Continuation of Home Economics 105B.

109. Problems in Nutrition. (3) III. Miss Jones
Prerequisite: Home Economics 103A or consent of instructor.
Reviews and discussions of scientific literature with emphasis on current nutritional problems.

114. Historic Textiles. (4) I. Mrs. Woolsey
Prerequisite: Home Economics 20 or consent of instructor.
Development of textile design motifs and techniques from ancient to contemporary times.

116. Historic Costumes. (4) III. Mrs. Woolsey
Prerequisite: one course from the Fine Arts General Education Curriculum and one course in History.
Analysis of historic style periods in relation to esthetic, cultural, economic, political and social factors from ancient times to the present.

120. Textile Analysis. (4) II. Mrs. Woolsey
Prerequisite: Home Economics 20.
Physical and chemical analysis of fabrics, fibers and finishes.

133. Child Development Laboratory. (3) I, II, III. Mrs. Elliott
Prerequisite: Home Economics 13, Psychology 1 (or 101), Sociology 1 (or 101), Zoology 40.
Interpretation of child-development principles through participation in an organized program for preschool children.

135. Institutional Food Study. (4) I. Miss Mathewson
Prerequisite: Home Economics 10, 100A (may be taken concurrently) and consent of instructor.
Principles and problems involved in the selection, preparation and service of food for institutions.

136. Institutional Food Service Design and Layout. (3) II. Mr. Scherer
Prerequisite: Home Economics 135 and consent of instructor.
Principles of layout for food service organizations and the selection and maintenance of equipment.

137. Institutional Organization and Management. (3) II. Miss Mathewson
Prerequisite: Home Economics 135 and consent of instructor.
Principles of effective management with emphasis on techniques of supervision for controlling food production and costs.

138. Institutional Personnel Management. (3) I. The Staff
Prerequisite: Home Economics 135 (may be taken concurrently).
Analysis of the principles, methods and procedures for effective utilization of human resources in food service institutions.

139. Institutional Food Production Management and Purchasing. (4) III. Miss Mathewson
Prerequisite: Economics 106A, Home Economics 136, 137 and 138.
Analysis of managerial processes involved in accounting systems, inventory controls, computer applications and purchasing.

***144. Family Finance.** (3) The Staff
Prerequisite: Economics 2 (or 109).
Management of family income in relation to family expenditure, savings, consumer credit, personal investment, home ownership, insurance, social security and annuities, and income and estate taxes.

***145. Consumers and Markets.** (3) The Staff
Prerequisite: Economics 2 (or 109).
Markets and conditions basic to the solution of consumer problems in the selection of goods.

146. Clothing Economics. (3) III. The Staff
Prerequisite: Economics 2 (or 109).
Physiological, psychological and sociological factors underlying clothing consumption. Socio-economic forces affecting production and distribution of textiles and clothing.

***148. Home Management Principles.** (3) Mrs. Rice
Prerequisite: Home Economics 144, Philosophy 1, Psychology 1 (or 101), Sociology 1 (or 101).
Management of human and material resources in the family.

149. Home Management Laboratory. (3) I, II, III. The Staff
Prerequisite: Home Economics 100A, 148 and consent of instructor.
Laboratory experience and directed study in managerial processes related to group living.

150. Family Housing. (3) I, III. Mr. Scherer
Prerequisite: Economics 2 (or 109), Psychology 1 (or 101), Sociology 1 (or 101).
Historic, esthetic, economic and functional aspects of family dwellings; appraisal of house plans in terms of optimum family living.

151. House Interiors and Furnishings. (3) II. Miss Tacionis
Prerequisite: Art 1 (or 150), Home Economics 150.
Functional and esthetic factors influencing interiors and furnishings for family homes.

***152. Advanced House Planning and Furnishings.** (3) III. Mr. Scherer
Prerequisite: Home Economics 151.
Studio projects in house planning and furnishings with individual research.

171. Recent Findings in Nutrition. (3) II. Miss Jones
Prerequesite: Home Economics 10, Zoology 40, 40L and consent of instructor. Not open to those who have taken Home Economics 103A.
Reviews and discussions of current literature in the field.

172. Recent Findings in Child Development. (3) III. Mrs. Elliott
Prerequisite: Home Economics 13 and consent of instructor.
Reviews and discussions of current literature in the field.

173. Recent Findings in Textiles. (3) I. Mrs. Woolsey
Prerequisite: Home Economics 20 and consent of instructor.
Reviews and discussions of current literature in the field.

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* Not scheduled for the 1971–72 academic year.

194. Senior Seminar in Home Economics. (2) III. The Staff

Prerequisite: senior standing and consent of instructor.

198. Readings in Home Economics. (1–3) I, II, III. The Staff

Prerequisite: consent of instructor.

This course may be taken for no more than two quarters and for a maximum of three units each quarter.

199. Independent Studies in Home Economics. (1–5) I, II, III. The Staff

Prerequisite: for majors.

199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

271. Seminar in Current Food and Nutrition Problems. (3) III. Miss Jones

Prerequisite: Home Economics 10, 100B and consent of instructor.

Presentation and discussion of current research and reviews of the literature on selected problems.

273. Seminar in Current Textiles and Clothing Problems. (3) I. Mrs. Woolsey

Prerequisite: Home Economics 20 and consent of instructor.

Presentation and discussion of current research and reviews of the literature on selected problems.

***274. Seminar in Current Housing Problems.** (3) III. Mr. Scherer

Prerequisite: Home Economics 150 and consent of instructor.

Human factors in housing, including a critical analysis of such factors as family life cycle, socioeconomic status, and attitudes, values and preferences on housing requirements. Special treatment of such current problems as the aged, low-income families and certain economic groups.

Related Courses in Other Departments

Education H 290. Curriculum and Instructional Procedures and Materials Used in the Teaching of Home Economics. (4) I. Miss Tacionis

Prerequisite: Home Economics 100B, 104, 105B, 133, 144, 149, or concurrent.

Education H 292A–B–C–D. Supervised Teaching in the Area of Home Economics. (3–3–3–3) I, II, III. Miss Tacionis

Prerequisite: Education H 290 and consent of instructor.

Education H 293. Problems Seminar in the Teaching of Home Economics. (1) II, III. Miss Tacionis

Prerequisite: Education H 290. Concurrent Education H 292A, B, C, or D.

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* Not scheduled for the 1971–72 academic year.

LINGUISTICS

Arthur Schwartz, Ph.D., *Associate Professor of Linguistics.*
C. Douglas Johnson, Ph.D., *Assistant Professor of Linguistics.*
Charles Li, B.A., *Acting Assistant Professor of Linguistics.*

A program in Linguistics initiated in 1967–68 offers both undergraduate and graduate level instruction. An undergraduate major is now offered and the program is presently under the direction of the Dean of the College of Letters and Science.

Linguistics focuses, principally, on the study of the structure of natural languages, and how this structure—syntactic, phonological, semantic—changes through time. From this empirical study, linguistics attempts to extract properties common to all language structure and structural change, and to develop a theory of general grammar. When linguistic structure is viewed more abstractly, it bears a relation to certain mathematical concerns, such as automata theory and Boolean algebra. The study of language with respect to its acquisition and use raises questions pertinent to areas known as socio-linguistics and psycho-linguistics.

Preparation for the Major

Linguistics 20.

The Major

Linguistics 110A & B, 111A & B, 112, 113A, 115, 121, 122, 123; 6–9 units from Semitic 120A, B, C and Linguistics 120A, B, C.

In General Education courses, Linguistics recommends: Philosophy 108, History 106A, B, C; Anthropology 101; Psychology 101, 127; Sociology 101, 136; Biology; Physics 8A, B, C, 10; Chemistry 1A, B, C; Mathematics 8, 9, 109, 110, 111A; Philosophy 133.

LINGUISTICS

Lower and Upper Division Courses

20. Language and Linguistics (4) III.
An introduction to the field and its applications. Synchronic and diachronic linguistics: their goals and methods. Allied fields: psycholinguistics, sociolinguistics. Application of linguistics: speech production and perception; mechanical translation; information retrieval; language learning; etc.

110A–B. Introduction to Syntax. (4) I.
An introduction to the description of the syntax of natural languages.

111A–B. Introduction to Phonology. (4) II.
Prerequisite: Linguistics 110 recommended.
Introduction to the description of the sound pattern of natural languages.

112. Introduction to Linguistic Change. (4) III.
Prerequisite: Linguistics 110 or 111, preferably both.
An introduction to the historical and dialectical study of natural languages.

113A–B. Introduction to Semantics (4–4) II–III.
Prerequisite: Linguistics 110A or permission of instructor.
Introduction to semantic description of natural language. Consideration of semantic fields, the role of logic and the underlying structure of language. Investigation of presupposition, entailment, synonymy, etc.

115. Mathematical Background for Linguistics. (4) I.
Deals with mathematical and logical concepts that are fundamental to the formal development of grammatical theory.

120A–B–C. Historical-Comparative Linguistics. (4–4–4) I, II, III.
Prerequisite: Linguistics 112.
An introduction to the methods of reconstruction in historical and comparative linguistics, as exemplified in one language-family.

121. Linguistic Analysis I. (4) I.
Prerequisite: Linguistics 110 or 111.
Study of the syntax of a non-IndoEuropean language.

122. Linguistic Analysis II. (4) II.
Prerequisite: Linguistics 121.
Study of the phonology of a non-IndoEuropean language.

123. Linguistic Analysis III. (4) III.
Prerequisite: Linguistics 122.
Formulation of a grammar based on the findings of the year's work, testing the adequacy of current linguistic theory.

194. Group Studies in Linguistics. (2–3) I, II, III.
Admission by special arrangement.
This course may be repeated with the consent of the department.
A course limited to small groups whose interest and needs will determine the central focus. The meetings—normally 2–3 hours each and averaging

at least once a week over the quarter—are not required to be periodic. A research paper is to be submitted by each student at the end of the quarter.

199. Independent Studies in Linguistics. (1–5) I, II, III.

Admission by special arrangement.

Intended for the study of special areas within Linguistics. 199 courses are limited to no more than 5 units in one quarter and not more than 12 units total.

Graduate Courses

205. The Description of Language. (3) I.

Prerequisite: Linguistics 110 (may be taken concomitantly with the instructor's permission).

Concerns of method: induction, intuition; grammatical relatedness; linguistic primes; levels of analysis and their empirical motivation; the structure of grammar.

209. Syntactic Theory. (3) I.

Prerequisite: Linguistics 110A, 110B, or permission of instructor.

Consideration of special topics in the theory of syntax; alternative formalisms; current controversial aspects.

210. Phonological Theory. (3) II.

Prerequisite: Linguistics 111A or 111B or permission of instructor.

Aspects of lexical representation; theories of rule application; distinctive feature analysis and its problems.

211. Formal Models of Language (3) II.

Prerequisite: Linguistics 115; and 205 or 210.

The study of models of language structure and use. The focus is principally on the relation of automata to the notion 'grammar,' but some attention may be given to statistical models of production, perception, and change.

215. Language Change. (3) III.

Prerequisite: Linguistics 205.

Language acquisition in the child; rule ordering and re-ordering; conditions for generalization; types of innovation; constraints on restructuring: lexicon vs. rule; mechanisms of 'drift.'

225. Semantics. (3) II.

Prerequisites: Recommended: Linguistics 205 and 210.

Its place in grammar: relation to syntax; the question of formalism and representation; relation to pragmatics and culture.

230. History of Linguistics. (3) II or III.

Prerequisite: Linguistics 205 and 210.

The role of IE studies of the 19th century; the Prague school; American structuralism; current theories.

594AA–594ZZ. Special Topics. (1–4) I, II, III.

594PH: Special Topics in Phonology.
594SX: Special Topics in Syntax.
594SM: Special Topics in Semantics.
Admission by special arrangement.

595AA–595ZZ. Group Studies (4) I, II, III.

595PH: Group Studies in Phonology.
595SX: Group Studies in Syntax.
595SM: Group Studies in Semantics.
Admission by special arrangement.

596AA–596ZZ. Directed Reading and Research (2–4) I, II, III.

596PH: Directed Reading and Research in Phonology.
596SX: Directed Reading and Research in Syntax.
596SM: Directed Reading and Research in Semantics.
Individual Tutorial.

Related Courses in Other Departments

(For details, see departmental listing)

Classics	202	Comparative Grammar of Greek and Latin
English	110	Structure of Modern English
	111	History of the English Language
French	202A	Old French Philology
	209A	Linguistics
German	120	History of the German Language
	202	Gothic
	220	History of German Grammar
Philosophy	133	Philosophy of Language
Psychology	127	Psychology of Language
	205A	Psychology of Language
	260	Seminar in Language Acquisition
Russian	108	The Russian Language
Semitic	101	The Structure of the Semitic Languages
	120A–B–C	Historical Semitic Linguistics
Sociology	136	Sociological Linguistics
Spanish	100	Spanish Linguistics
	201	Historical Grammar and Old Spanish Readings
Speech	117	Language and Human Behavior
	118	The Limits of Language
	155	Speech Science

MATHEMATICS

Thomas K. Boehme, Ph.D., *Professor of Mathematics.*
Andrew M. Bruckner, Ph.D., *Professor of Mathematics.*
John A. Ernest, Ph.D., *Professor of Mathematics.*
[1,2]Ky Fan, Docteur-es-Sciences Mathématiques, *Professor of Mathematics.*
Paul J. Kelly, Ph.D., *Professor of Mathematics.*
Marvin Marcus, Ph.D., *Professor of Mathematics.*
Henryk Minc, *Professor of Mathematics.*
Robert C. Thompson, Ph.D., *Professor of Mathematics.*
Lewis F. Walton, Ph.D., *Professor of Mathematics.*
Adil M. Yaqub, Ph.D., *Professor of Mathematics.*
Charles A. Akemann, Ph.D., *Associate Professor of Mathematics.*
[1]Seymour Bachmuth, Ph.D., *Associate Professor of Mathematics.*
Hubert Berens, Ph.D., *Associate Professor of Mathematics.*
Michael J. Cambern, Ph.D., *Associate Professor of Mathematics.*
Jack G. Ceder, Ph.D., *Associate Professor of Mathematics.*
Eugene C. Johnsen, Ph.D., *Associate Professor of Mathematics.*
Horace Y. Mochizuki, Ph.D., *Associate Professor of Mathematics.*
David L. Outcalt, Ph.D., *Associate Professor of Mathematics (Chairman of the Department).*
James B. Robertson, Ph.D., *Associate Professor of Mathematics.*
Melvin Rosenfeld, Ph.D., *Associate Professor of Mathematics.*
Stephen Simons, Ph.D., *Associate Professor of Mathematics.*
James M. Sloss, Ph.D., *Associate Professor of Mathematics.*
David A. Sprecher, Ph.D., *Associate Professor of Mathematics.*
Max L. Weiss, Ph.D., *Associate Professor of Mathematics.*
Larry J. Gerstein, Ph.D., *Assistant Professor of Mathematics.*
Dimitri Koutroufiotis, Ph.D., *Assistant Professor of Mathematics.*
Kenneth C. Millett, *Ph.D., Assistant Professor of Mathematics.*
John D. Moore, Ph.D., *Assistant Professor of Mathematics.*
[1]Phillip A. Ostrand, Ph.D., *Assistant Professor of Mathematics.*
Julian Weissglass, Ph.D., *Assistant Professor of Mathematics.*
[2,3]Raymond Yen-Tin Wong, Ph.D., *Assistant Professor of Mathematics.*
Julius M. Zelmanowitz, Ph.D., *Assistant Professor of Mathematics.*
William N. Hudson, *Lecturer in Mathematics.*
Raymond L. Wilder, *Visiting Professor, Spring quarter only.*

Preparation for the Major

The student should have completed two years of algebra and courses in plane geometry and trigonometry in high school. Competence in the following university courses, or their equivalents, is essential for successful upper division study: Mathematics 3A–B–C, 4A–B, 8, 9. At least two quarters of Physics (either 1, 2–2L or 8A–B) is strongly recommended.

Requirements for the Major

A minimum of 40 units of upper division mathematics, not including Mathematics 100A–B–C. Students who have taken upper division mathematics courses prior to the Winter Quarter 1971 must complete a minimum of 36 units of upper division mathematics courses and a minimum of 10 upper division mathematics classes. Apart from Mathematics 101A–B and 102A, at least two courses must be in algebra, two in analysis, and one in geometry or topology.

Graduate Preparatory. Students preparing for graduate study in mathematics are advised to complete Mathematics 108A–B and 119A in their sophomore year, 111A–B–C in the junior year, and 118A–B–C in the senior year. Other upper division courses are chosen in consultation with the adviser.

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[1] Absent on leave, fall 1971.
[2] Absent on leave, winter 1972.
[3] Absent on leave, spring 1972.

Honors Program. The honor sections of calculus, 3BH and 3CH, are intended to select students with exceptional ability and motivation for mathematics. Students who do well in these courses, and other students by special recommendation, may in their sophomore year begin the upper division honor sequence 117AH–BH–CH–DH–EH. For these students, the sequence replaces Mathematics 4A–B, 108A–B, and 119A, and gives an enriched and accelerated preparation for certain graduate courses.

Applied Mathematics. Students intending to go into industrial work should take EE5 and EE105, and should select their upper division major courses from the following: Mathematics 104A–B–C, 108A–B, 119A–B–C, 120A–B–C, 122A–B, 123A–B–C. Those preparing for graduate work in applied mathematics should complete the courses listed in the graduate preparatory program.

Teaching. Students who intend to teach in secondary schools are advised to add EE5 to their lower division preparation and EE105 to their upper division work. Mathematics courses 108A–B and 119A are basic general background, while 101A–B, 102A–B, and 103 form the core of the teacher training program. (replacing the former 101A–B–C). Appropriate electives are 106, 107, 109, 110, 112A–B, 113, 114, 115, 116. Especially capable students are encouraged to substitute courses from the 111 and 118 sequences in place of 101A–B and 103.

Requirements for the Minor

A minor in mathematics has official status only as part of a program of study required for an elementary, secondary, or junior college teaching credential. Plane geometry, trigonometry, and two years of high school algebra are required for admission to a minor in mathematics.

The California State Department of Education specifies that a minor consists of 30 units and that if the major is in a non-academic subject, then 18 of the 30 units must be upper division. However, in order to qualify for a U.C.S.B. recommended credential with a minor in mathematics, a student must include Math 101A, 102A and one course from 101B, 102B and 103 as part of the 30 units. Math 1 may not be included in the 30 units.

TEACHING CREDENTIALS

Either a major or a minor in Mathematics may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. All students preparing for a standard teaching credential with a specialization in elementary teaching must take Mathematics 100A–B or have a minor in mathematics. For further information concerning teaching credentials, students should confer with designated counselors in the Department of Mathematics and in the Graduate School of Education.

THE DEGREE OF MASTER OF ARTS

Candidates for admission must present a bachelor's degree with a major in mathematics or the equivalent of such training. Entering students may be appraised by means of examination in addition to the evaluation of their records. Whenever necessary, supplementary course work will be required. The department offers two plans for completing the degree: Plan I, thesis option and Plan II, comprehensive examination option.

Requirements for the Degree

Plan I, Thesis option

1. Completion of 36 units of approved course work. A minimum of 18 units must be taken in graduate mathematics courses. The remaining courses may be selected from upper division or graduate courses in mathematics, or in appropriate related fields with approval of the department. A maximum of 6 units of Math 596, M.A. thesis research, may be applied to the 36 unit requirement.
2. Demonstration of adequate knowledge in linear algebra, modern algebra, real analysis and complex analysis. This requirement may be satisfied by passing Math 108A–B; 111A–B–C;

118A–B–C; and 122A–B, or essentially equivalent courses at another college or university, with an average grade of "B" or better.

3. Preparation of an acceptable thesis under the supervision of a faculty member and oral defense of the thesis before a faculty committee. The student's thesis plans should have the prior approval of his thesis supervisor and the Graduate Committee.

Plan II. Comprehensive Examination option.

1. Completion of 36 units of approved course work. A minimum of 18 units must be taken in graduate mathematics courses. The remaining courses may be selected from upper division or graduate courses in mathematics, or in appropriate related fields with approval of the department.

2. Passing of comprehensive written examinations in algebra and in analysis.

THE DEGREE OF MASTER OF ARTS IN APPLIED MATHEMATICS

Admission

In addition to the scholarship requirements for graduate study, a candidate must hold a bachelor's degree in mathematics, physics, or engineering. He must also have had undergraduate course work in matrix algebra, differential equations, and advanced calculus (or its equivalent), and also general physics, electricity, and magnetism. Evaluation of the candidate's past work will be made by the Mathematics Department, and supplemental undergraduate work will be required whenever necessary.

Requirements for the Degree

Completion of 36 units beyond the bachelor's degree, of which at least 18 must be in graduate courses. Of these 18 units, 9 must be in pure mathematics and 9 must be in applied mathematics or in subjects relating to applied mathematics given by other departments. Also, the student must take either the analysis or the algebra examination regularly administered by the Mathematics Department to candidates for The Master of Arts degree. (Selection of the specific examination is to be made by the student's adviser.) In addition, the student is expected to take an oral examination administered by two Mathematics Department professors chosen by the student with the approval of his adviser, or write a thesis on a subject in an applied field.

DOCTORAL PROGRAM

A student advances to candidacy for the degree of Doctor of Philosophy in mathematics after having passed an oral examination. Prior to this, he must have passed a series of written qualifying examinations and have shown proficiency in two foreign languages, normally chosen from French, German, and Russian.

Information about the written qualifying examinations and specific areas of specialization for the doctoral dissertation can be obtained from the department.

MATHEMATICS

Lower Division Courses

1. Pre-Calculus Mathematics. (4) I, III. The Staff

Prerequisite: None.

Not open for credit to students who have had 3½ units of high school mathematics or who have taken other university mathematics courses except Math. 13 and Math. 30A–B.

Factoring polynomials, inequalities, absolute value, graphing functions, solving systems of equations, 3 × 3 determinates, logarithm and exponential functions, trigonometry.

3A. Analytic Geometry and Calculus, First Course. (4) I, II, III. The Staff

Prerequisite: 1½ years of high school algebra and trigonometry. Introductory analytic geometry, limits, continuity, differentiation.

3B. Analytic Geometry and Calculus, Second Course. (4) I, II, III. The Staff

Prerequisite: Mathematics 3A.

The definite integral; logarithmic, exponential, and trigonometric functions.

3C. Analytic Geometry and Calculus, Third Course. (4) I, II, III. The Staff

Prerequisite: Mathematics 3B.

Techniques of integration, polar coordinates, infinite series.

4A. Analytic Geometry and Calculus, Fourth Course. (4) I, II, III. The Staff

Prerequisite: Mathematics 3C.

Vector algebra, partial derivatives, Lagrange multipliers, chain rule.

4B. Analytic Geometry and Calculus, Fifth Course. (4) I, II, III. The Staff

Prerequisite: Mathematics 4A.

Multiple integrals, line and surface integrals, Green's Theorem, Stokes' Theorem, divergence theorem.

8. Introduction to Modern Algebra. (4) I, II, III. The Staff

Topics include: principle of induction, integers, integers modulo n, elementary number theory, division and Euclidean algorithms, prime factorization, complex numbers, polynomial rings and properties of polynomials, theory of equations, permutations.

9. Elementary Linear Algebra. (4) I, II, III. The Staff

Intended for majors and non-majors. Topics include vector spaces, linear transformations, vector operations, matrix operations, solutions of systems of linear equations, determinants, characteristic roots and vectors. Emphasis upon computational skills.

11A–B. Calculus. (4–4) I, II. The Staff

Prerequisite: 1½ years of high school algebra, trigonometry, and analytic geometry.

Course covers the material in Mathematics 3A–B–C for students who have studied analytic geometry.

13. Mathematics Appreciation. (3) I, II, III. The Staff

A course intended to give general students a better understanding of the nature of mathematics, the character and origin of different subject fields in mathematics, and the source of mathematical research.

30A. Finite Mathematics. (4) I, II, III. The Staff

Prerequisite: second-year high school algebra.

Finite problems having applications in the behavioral sciences. Compound statements, sets, combinatorial problems, probability, vectors, matrices.

30B. Finite Mathematics. (4) II, III. The Staff

Prerequisite: Mathematics 30A.

Systems of linear equations, linear programming, convex geometry, game theory, and Markov chains.

33. Statistics. (4) I, II, III. The Staff

Prerequisite: None.

Random variables, sampling distribution, estimation, tests by hypotheses, correlation and regression.

34A. Introduction to Calculus and Statistics. (4) I, II. The Staff

Prerequisite: 1½ years of high school algebra.

Calculus of one variable including differentiation, curve sketching, max-min problems, exponential and logarithm functions, integration, improper integrals.

34B. Introduction to Calculus and Statistics. (4) II, III. The Staff

Prerequisite: Math. 34A.

Techniques of integration, calculus of several variables including partial derivatives and Lagrange multipliers, separable differential equations, probability including independence, expectation, mean and variance, Chebyshev's inequality, conditional probability and regression.

34C. Introduction to Calculus and Statistics. (4) III, I.

Prerequisite: Math. 34B.

Estimation, confidence intervals, testing hypothesis including the t test and χ^2 goodness of fit test. Additional statistical procedures.

Upper Division Courses

100A–B–C. Mathematics for Elementary Teaching. (3–3–3) I–II, II–III, III. The Staff

Prerequisite: high school algebra and geometry.

Designed for candidates for the elementary teaching credential. Not open to mathematics majors. Numeration systems, properties of sets, structure of the real number system and its subsystems, mathematical justification of computational procedures, division algorithm, congruences, elements of geometry. *Non-letters and science course.*

101A. Classical Number Systems. (4) I.

Prerequisite: Mathematics 3C or 32. The Staff

Especially suitable for prospective teachers. A conceptual rather than an axiomatic development starting with the natural numbers and progressing through the integral, rational, real, and complex number systems, treating the basic properties of each. (Not open to those who have passed 118A.)

101B. Elementary Real Analysis. (4) II.

Prerequisite: Mathematics 101A. The Staff

Especially suitable for prospective teachers. Basic theory of real valued functions of a single real variable, limits, continuity, sequential convergence, differentiation, integration, fundamental theorem of calculus. (Not open to those who have passed 118A.)

102A. Modern Elementary Geometry. (4) II. The Staff

Prerequisite: Mathematics 3C or 32.

Especially suitable for prospective teachers. Foundation properties of Euclidean 3-space from the Birkhoff axioms. Surveys of concepts new to the traditional secondary course, elements of convex body theory, motions and similarities.

102B. Transformation Geometry. (4) III. The Staff

Prerequisite: Mathematics 9, 102A, or 108A, or consent of the instructor.

Especially suitable for prospective teachers. Formulation of the theory in 102A in vector and matrix terms with an emphasis upon group properties and with extensions to n dimensions. Discussion of affine, projective, and topological mappings with examples of related invariants.

103. Introduction to Group Theory. (4) III. The Staff

Prerequisite: Mathematics 8.

Intended primarily for prospective teachers. Permutation groups, cyclic groups, theory of finite groups, group homomorphisms and isomorphisms, Abelian groups. Applications to number theory and geometry.

104A. Numerical Methods by Approximation. (4) I. The Staff

Prerequisite: Mathematics 4B (may be taken concurrently).

Properties of polynomials, polynomial approximation, orthogonal polynomials, numerical differentiation and integration, Tchebycheff and Legendre polynomials.

104AL. Laboratory in Numerical Analysis (1) I. The Staff

Prerequisite: Simultaneous enrollment in Mathematics 104A.

Instruction in the use of the on-line computer as a means of solving problems from Math. 104A.

104B. Numerical Methods in Differential Equations. (4) II. The Staff

Prerequisite: Mathematics 104A and 119A.

Numerical solution of initial value and two point boundary value problems of ordinary differential equations. Systems of equations, higher order and non-linear equations.

104BL. Laboratory in Numerical Analysis (1) II. The Staff

Prerequisite: Simultaneous enrollment in Math. 104B.

Instruction in the use of the on-line computer as a means of solving problems from Math. 104B.

104C. Numerical Methods in Algebraic Problems. (4) III. The Staff

Prerequisite: Mathematics 108A.

Spectral theory of finite matrices. Direct and iterative methods for inverting matrices and solving linear equations. Various methods for obtaining characteristic values and vectors of matrices. Numerical solution of systems of non-linear equations.

104CL. Laboratory in Numerical Analysis (1) III. The Staff

Prerequisite: Simultaneous enrollment in Math. 104C.

Instruction in the use of the on-line computer as a means of solving problems from Math. 104C.

106. Number Systems of Algebra. (4) III. The Staff

Prerequisite: Mathematics 8 or consent of instructor.

Brief review of the integral, real, and complex number systems, development of p-adic numbers, algebraic integers, quaternions, Cayley numbers, extension fields of rationals.

107. Discrete Probability Theory. (4) III The Staff

A systematic development of probability theory for finite sample spaces, conditional probability, independence, counting techniques, binomial distribution, random variables, expectation, and other topics such as Markov chains, Poisson distributions and hypothetical testing.

108A–B. Introduction to Linear Algebra. (4–4) I–II, II–III, The Staff

Vector spaces and linear transformations, matrix algebra, linear equations, determinants, characteristic roots, normal matrices, matrix inequalities.

109. Foundations of Mathematics. (4) II.

Prerequisite: Mathematics 8. The Staff

Introduction to symbolic logic, theory of formal proof, axiom systems, consistency and completeness.

110. Set Theory. (4) III. The Staff

Fundamentals of set theory, ordinal numbers, cardinal arithmetic, transfinite methods.

111A–B–C. Introduction to Abstract Algebra. (4–4–4) Yr. The Staff

Prerequisite: Mathematics 8 and 108A or consent of instructor.

Groups, rings, fields, elementary divisors.

112A–B. Projective Geometry. (4–4) I–II.

Prerequisite: Mathematics 4A. The Staff

One- and two-dimensional analytic projective geometry.

113. Non-Euclidean Geometry. (4) I. The Staff

Prerequisites: Mathematics 4A or consent of instructor.

Primarily an introduction to hyperbolic geometry with some discussion of other non-Euclidean systems.

114. Convex Figures. (4) III. The Staff

Prerequisite: Mathematics 4A or consent of instructor.

Introduction to theory of convex bodies, primarily in two dimensions.

115. Number Theory. (4) I. The Staff

Prerequisite: Mathematics 4A and 8.

Topics include: number bases, factorization, Diophantine equations, congruences, residues, numerical functions, distribution of primes.

116. Combinatorial Mathematics. (4) III. The Staff

Prerequisite: Mathematics 4B and 9, or consent of instructor.

Combinational problems in analysis, algebra, geometry, and topology.

117AH. Vector Spaces. (4) I. The Staff

Prerequisite: Consent of instructor.

Honors course. Linear transformations of vector spaces, dual space matrices, trace, determinants. (May be followed by 108B if the honors sequence is not continued.)

117BH. Topics in Algebra and Analysis. (4) II. The Staff

Prerequisite: Consent of instructor.

Honors course. Norms, differentials, means value theorem, implicit function theorem, metric spaces, compactness, completeness, contraction mappings, fixed point theorems.

117CH. Topics in Differential Equations. (4) III. The Staff

Prerequisite: Consent of instructor.

Honors course. Scalar product spaces, self adjoint transformations, differential equations, existence theorems, boundary value problems, Fourier series.

117DH. Topics in Algebra and Analysis. (4) I. The Staff
Prerequisite: Consent of instructor.
Honors course. Multilinear functionals, tensors, exterior algebra, Riemann integration, change of variables, Fubini theorem, introduction to differentiable manifolds.

117EH. Introduction to Exterior Calculus. (4) II. The Staff
Prerequisite: Consent of instructor.
Honors course. Differentiable manifolds, integral calculus on differentiable manifolds, exterior calculus.

118A–B–C. Introduction to Real Analysis. (4–4–4) Yr. The Staff
Prerequisite: senior standing is recommended.
The real number system, elements of set theory, continuity, differentiability, the Riemann integral, functions of bounded variation, implicit function theorems, convergence processes, special topics.

119A. Differential Equations. (4) I, II, III. The Staff
Prerequisite: Mathematics 4B. May be taken concurrently.
First and second order linear differential equations, linear equations with constant coefficients, series solutions, method of undetermined coefficients, Laplace transform.

119B. Differential Equations. (4) II. The Staff
Prerequisite: Mathematics 119A.
Existence and uniqueness by successive approximations, solutions of systems of differential equations by vector methods, regular singular points, series solutions, special functions, boundary value problems.

119C. Differential Equations. (4) III
Prerequisite: Mathematics 119B. The Staff
Autonomous systems, phase plane, equations with periodic coefficients, stability, Lyapunov method, limit cycles.

120A–B–C. Probability and Statistics. (4–4–4) Yr. The Staff
Prerequisite: Mathematics 4B.
Basic concepts of probability, limit theorems, discrete and continuous random variables, derived distributions, some statistical applications. Point estimation, random sampling, tests of hypotheses, confidence intervals.

122A–B. Introduction to Theory of Complex Variables. (4–4) I–II, II–III. The Staff
Prerequisite: Mathematics 4B.
Complex numbers, functions, differentiability, series, extensions of elementary functions, complex integration, calculus of residues, conformal maps, mapping functions, applications.

123A. Functions of Several Variables. (4) I.
Prerequisite: Mathematics 4B. The Staff
Differential and integral calculus of functions of several variables and of vector fields. Jacobians, Taylor series expansion in many variables. Green's theorem, divergence theorem, Stokes' theorem.

123B. Fourier Series. (4) II. The Staff
Prerequisite: Mathematics 119A.
Linear spaces, orthogonal sets of functions, Fourier series, Sturm-Liouville theory.

123C. Partial Differential Equations. (4) III.
Prerequisite: Mathematics 123A–B. The Staff
Derivation of equations. Eigenfunction expansions, separation of variables. Integral transforms, types of partial differential equations. Green's and Riemann's functions.

124A–B–C. Topics in Applied Mathematics. (3–3–3) I, II, III. The Staff
Prerequisite: Mathematics 4B.
For majors in the physical sciences or engineering; not for credit toward the mathematics major without special permission. Fourier series, ordinary differential equations, Laplace transform, partial differential equations, boundary value problems, Fourier transform, topics in complex analysis.

126A–B–C. General Topology. (4–4–4) Yr. The Staff
Prerequisite: Mathematics 4B or consent of instructor.
Set theory, basic notions of topological spaces, continuous maps and homeomorphisms, compactness, product spaces, metric spaces, filters and nets, special topics.

128. Operational Calculus. (4) III. The Staff
Prerequisite: Mathematics 122A.
Fourier and Laplace transforms. Parseval's theorem, convolution theorem, inversion formulas, Paley-Wiener theorem and applications.

132. Game Theory and Linear Programming. (4) III. The Staff
Prerequisite: Mathematics 9 or 108A.
Convex geometry of Euclidean spaces, separation theorems, matrix games, linear inequalities, linear programming, the simplex method.

140A–B–C. Introduction to Topology and Differential Geometry. (4–4–4) Yr. The Staff
Prerequisite: Mathematics 4B and 108A.
Topological spaces, continuity, compactness, connectedness, product spaces, metric spaces, homotopy, fundamental group and covering spaces. Differentiable manifolds, tangent vectors, differential forms, orientability, Stokes Theorem. Theory of curves and surfaces in Euclidean space, Riemannian geometry on two dimensional manifolds, Gauss-Bonnet Theorem.

141. Multilinear Algebra. (4) III. The Staff
Prerequisite: Mathematics 108B.
Duality, multilinear mappings, tensor spaces, symmetry classes, graded algebras, linear transformations on tensor spaces, induced transformations, inner products on tensor spaces, elementary representation theory.

190A–B–C. Special Topics in Mathematics. (4–4–4) Yr. The Staff
Prerequisite: consent of instructor.
Information about the special topics to be presented may be obtained from the office of the Department of Mathematics.

194. Group Studies for Advanced Students. (1–4) I, II, III. The Staff

Prerequisite: consent of instructor.

Lectures and discussions on special topics.

199. Independent Studies in Mathematics. (1–5) I, II, III. The Staff

199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200A–B–C. Real and Complex Analysis. (4–4–4) Yr. The Staff

Prerequisite: Mathematics 118A–B–C, or equivalent.

Real and complex analysis, measure theory, and rudiments of functional analysis.

201A–B–C. Measure and Integration. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 118A–B–C or equivalent.

Abstract measures and outer measures, completion of measures, measurable functions, integration, convergence theory, Fubini's theorem, signed measures, measures on locally compact spaces, special topics.

202A–B–C. Complex Variables. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 118A–B–C or equivalent.

Holomorphic functions, Cauchy integral theorems, Taylor and Laurent series, analytic continuation, conformal mapping, residue theory, and special topics.

204A–B–C. Advanced Numerical Analysis. (3) I, II, III. The Staff

Prerequisites: Math 104A–B–C, or Math 108A, 119A, 118A, or consent of instructor.

Topics from: Numerical treatment of partial differential equations, elliptic boundary value problems, hyperbolic and parabolic equations, Stability, error estimates and accelerated convergence. Numerical treatment of integral equations. Variational techniques. Newton method applied to operator equations. Monotone operators.

209. Set Theory. (3) I. The Staff

A rigorous study of axiomatic set theory; topics include ordinal numbers, transfinite induction, cardinal numbers, cardinal arithmetic, and the Axiom of Choice.

210A–B–C. Advanced Topics in the Theory of Real Functions. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 200A–B–C.

Special topics chosen by the instructor. Topics may include the integrals of Perron, Denjoy, Khintchine and others, the Baire classification of functions and the Borel classification of sets, the measure problem, density theorems, negligible sets, functions of several real variables.

211A–B–C. Advanced Topics in Complex Variables. (3) I, II, III. The Staff

Prerequisites: Consent of Instructor.

Special topics chosen by the instructor. Possible topics include: several complex variables; Riemann surfaces; potential theory; H^p spaces; entire and meromorphic functions; cluster sets; conformal mappings.

212A–B. Projective Metric Geometry. (3–3) I–II. The Staff

Prerequisite: Mathematics 112A–B.

A study of metric spaces which can be imbedded in a projective space so that the metric lines are carried by the projective lines; included are two and three dimensional non-Euclidean geometries.

213A–B–C. Probability Theory. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 120A–B–C or equivalent, or Mathematics 201A (may be taken concurrently), or consent of the instructor.

Foundations of probability, distribution functions, characteristic functions, stochastic processes, central limit problem, martingales, stationary processes.

214A–B–C. Introduction to Stochastic Processes. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 118A–B, 120A–B–C.

Random walks, renewal theory, Markov processes, branching processes, information theory.

218A–B–C. Combinatorial Mathematics. (3–3–3) I, II, III. The Staff

Prerequisite: Mathematics 108B and 111A–B.

Principle of inclusion and exclusion, recurrence relations, Ramsey's theorem, Polya's theorem, partially ordered sets, Möbius functions, arrangements with restrictions, systems of distinct representatives, Latin squares and rectangles, block designs, finite geometrics, Hadamard matrices, difference sets, (0,1) matrix theory, extremal problems.

220A. Modern Algebra. (3) I. The Staff

Prerequisite: Mathematics 108A–B, 111A–B.

Group theory.

220B. Modern Algebra. (3) II. The Staff

Prerequisite: Mathematics 108A–B, 111A–B.

Ring theory.

220C. Modern Algebra. (3) III. The Staff

Prerequisite: Mathematics 220A.

Field theory and Galois theory.

221A–B–C. Topics in Field Theory. (3–3–3) Yr. The Staff

Prerequisite: consent of instructor.

222A–B–C. Topics in Group Theory. (3–3–3) Yr. The Staff

Prerequisite: consent of instructor.

223A–B–C. Topics in Ring Theory. (3–3–3) Yr. The Staff

Prerequisite: consent of instructor.

224A–B–C. Topics in Linear Algebra. (3–3–3) Yr. The Staff

Prerequisite: consent of instructor.

225A–B–C. Topics in Number Theory. (3–3–3) Yr. The Staff

Prerequisite: consent of instructor.

Selected topics in number theory.

226A–B–C. General Topology. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 118A or equivalent.

Topological spaces and continuous functions. Filters and convergence. Compactness. Connectedness. Product and quotient spaces, direct and inverse limits. Metric spaces. Completion and compactification. Normal spaces. Paracompactness and metrization. Baire category. Function spaces.

Special topics (retracts, homotopy, maps into spheres, covering spaces, fibre spaces.)

227A–B–C. Advanced Topics in Geometric and Algebraic Topology (3–3–3) I, II, III. The Staff

Prerequisite: Consent of the instructor.

Topics, varying from year to year, include piecewise linear and differential topology, manifolds, fiber bundles and fiber spaces, homotopy theory, and spectral sequences.

228A–B–C. Functional Analysis. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 201A–B, 226A–B.

Linear topological spaces. Hilbert spaces, Banach spaces, locally convex spaces, Banach algebras. Special topics.

229A–B–C. Hilbert Space. (3–3–3) Yr.

Prerequisite: Mathematics 200A–B–C. The Staff

Geometry, operator theory, algebras of operators.

230A–B–C. Topological Groups. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 226A–B–C, Mathematics 220A.

General properties of topological groups. Unitary representations of compact groups. Duality and structure of locally compact abelian groups. Haar measure. Unitary representations of locally compact groups. Harmonic analysis. Special topics.

231A–B–C. Topological Vector Spaces. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 200A–B–C, 226A–B–C.

Topologico-geometric properties. Weak compactness. Integral representations of compact convex sets. Choquet boundary, simplexes. Barreled spaces. Bornological spaces. Frechet spaces. Montel spaces. Nuclear spaces. Ordered topological vector spaces. Functional representations. Positive operators. Special topics.

232A–B–C. Algebraic Topology. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 220A–B–C, 226A–B–C.

Homotopy groups. Fiber spaces. Singular and simplicial homology. Cohomology. Products. Duality theorems.

239A–B–C. Nonassociative Algebra. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 220A–B–C.

Associative, Lie, and Jordan algebras. Alternative rings. Generalizations.

240A–B–C. Differential Geometry. (3–3–3) I, II, III. The Staff

Prerequisite: Mathematics 140A–B, 200A–B–C.

Theory of surfaces in Euclidean space. Riemannian space. Topics from differential geometry in the large. Elements of differential geometry in general spaces: geodesics, motions, curvature, topological structure.

243A–B–C. Ordinary Differential Equations. (3–3–3) Yr. The Staff

Ordinary differential equations in real and complex domains. Existence and differentiability of solutions. Analysis of singular points. Poincaré-Bendixson theorem, perturbation theory, Sturm-Liouville theory, asymptotic expansions, stability.

245A–B–C. Differential Equations and Operator Theory for Physical Sciences. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 118A or consent of instructor.

Linear spaces, spectral theory of operators, Green's functions, eigenvalues of ordinary differential equations, partial differential equations.

246A–B–C. Partial Differential Equations. (3–3–3) Yr. The Staff

Prerequisite: Mathematics 118A or consent of instructor.

Cauchy-Kowaleski theorem. Characteristics. Theory of initial value and boundary value problems for elliptic, hyperbolic and parabolic equations. Existence of uniqueness of solutions.

260. Seminars in Mathematics. (1–6) I, II, III. The Staff

Topics in analysis, geometry, algebra, functional analysis, topology, and applications, by means of lectures and informal conferences with members of staff. May be repeated for credit.

270A–B–C. Special Topics in Algebra. (3–3–3) I, II, III. The Staff

Prerequisite: B.A. or B.S., with mathematics major, or consent of instructor.

Intended for students working for Junior College Credential or M.A. in Education with mathematics emphasis. Particular consideration of the relation of special and advanced topics to the junior college and secondary curriculum.

271A–B–C. Special Topics in Geometry and Analysis, (3–3–3) I, II, III. The Staff

Prerequisite: B.A. or B.S., with mathematics major, or consent of instructor.

Intended for students working toward a Junior College credential or M.A. in Education with mathematics emphasis. Particular consideration of the relation of special and advanced topics to the junior college and secondary curriculum.

280. Surveys in Contemporary Mathematics. (3) I, II, III. The Staff

An expository treatment of a topic of current interest in mathematics with sufficient detail to impart the flavor of the field. Where appropriate, applications to other fields of mathematics will be included. The course is designed for the nonspecialist in the area treated. The topics will vary from quarter to quarter.

Math 596AA–596ZZ. Directed Studies. (1–6) I, II, III.

Math 599AA–599ZZ. Ph.D. Dissertation Preparation. (1–6) I, II, III.

MECHANICAL ENGINEERING

Thomas P. Mitchell, Ph.D., *Professor of Engineering Mechanics (Chairman of the Department of Mechanical Engineering).*
William T. Thomson, Ph.D., *Professor of Engineering*
William C. Kuby, Ph.D., *Associate Professor of Mechanical Engineering. (Associate Dean of Engineering).*
Roy S. Hickman, Ph.D., *Associate Professor of Mechanical Engineering (Vice Chairman of the Department of Mechanical Engineering).*
Harmut H. R. Bossel, Ph.D., *Associate Professor of Mechanical Engineering.*
John C. Bruch, Ph.D., *Assistant Professor of Engineering Mechanics.*
Robert B. Roemer, Ph.D., *Assistant Professor of Mechanical Engineering.*
Gary M. Connell, Ph.D., *Assistant Professor of Mechanical Engineering.*
Ekkehard Marschall, Ph.D., *Assistant Professor of Mechanical Engineering.*
Frederick Milstein, Ph.D., *Assistant Professor of Mechanical Engineering.*
James P. Vanyo, Ph.D., *Assistant Professor of Mechanical Engineering.*

UNDERGRADUATE PROGRAM

The undergraduate programs in Mechanical Engineering will be presented at all levels in 1970–71.

In preparing programs a student must plan to take all courses in his departmental major and those requirements in General Education.

THE DEGREE OF MASTER OF SCIENCE

Requirements

1. In addition to the general requirements for admission to graduate status, the department requires a bachelor's degree in mechanical engineering or its equivalent from a school or college of recognized standing.

2. Applicants with undergraduate preparation that is deemed inadequate may be required to take additional courses.

3. The degree is administered under Plan I and Plan II. Plan I requires 30 units of course credit approved by the departmental director of graduate studies, with a minimum of 15 units in approved graduate engineering courses. The remaining credits may be chosen from 100- or 200-level courses in mechanical engineering or other branches of engineering, mathematics or science, as approved by the Department. Each student in Plan I will pursue a research project which will be approved by the Mechanical Engineering Department, the results of which will be presented as a thesis.

Plan II requires 36 units of course credit approved by the departmental director of graduate studies, with a minimum of 24 units in approved graduate engineering courses. The remaining credits may be chosen from 100- or 200-level courses in mechanical engineering or other branches of engineering mathematics or science as approved by the Department. The Plan II program will culminate in a written comprehensive examination, in the subjects studied.

Fields of study center in the disciplines of thermal sciences, solid mechanics, fluid mechanics, material sciences, and design.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Requirements

1. *Admission:* Admission to graduate standing in the M.S. program does not imply entrance to the doctoral program. A student will be accepted in the doctoral program only with the approval of his department chairman and the Dean of the Graduate Division. In general, the student must earn the M.S. degree and show evidence of scholarly attainment before being considered for the Ph.D. program.

2. *Preparation:* A student must pass a screening examination which is identical to the M.S. degree comprehensive examination. A student must further demonstrate his competence in

a major field and two minor fields, one of which is outside the M.E. Department, by successfully passing preliminary examinations in these fields. It is generally expected that students will spend a year of study beyond the M.S. in preparation for the field examinations.

3. *Foreign Language*—No foreign language is required.

4. *Candidacy:* A student will be advanced to candidacy after passing the screening examination, his preliminary examinations, and a qualifying examination in his major field of study. The thesis committee, established to guide the student in his research, will consist of three members from the Mechanical Engineering Department and at least one member from outside the department. The qualifying examination will be administered by the same committee.

5. *Dissertation:* The emphasis in the Ph.D. program is on the ability to correlate knowledge in the pursuit of original research. The results of the research shall be successfully defended by the student in an oral examination and presented as a dissertation in accordance with regulations of the Graduate Division.

TEACHING CREDENTIALS

Either a major or a minor in Engineering may serve as an appropriate part of the program of studies required for a junior college teaching credential in California. A student wishing to secure this credential should confer with designated counselors in the College of Engineering and in the Graduate School of Education.

Mechanical Engineering

Required for the major—(71 units in lower division): ME 1A–B, ME 5, ME 7, Chemistry 1A–B–C, Math 3A–B–C, EE 2A, EE 6, Physics 7A–B–C and Math 4A–B.

The major—(56 units of upper division courses) including: ME 140A–B, ME 101, ME 151A–B, ME 157, 152A–B, 153, 155, 156A–B–C, 163, and department electives.

Lower Division Courses

ME 3A–B. Computer Solutions of Engineering and Science Problems. (2–2) I, II. Mr. Bruck, Mr. Milstein

Prerequisite: Math. 3A–B (can be taken concurrently).

Application of computers to engineering and scientific problems. FORTRAN language programming, elements of numerical analysis including introduction to error sources, recursion, numerical calculus, root finding, etc. Students will use the computer. Ch.E. 3, EE 3, ME 3, and Num.E. 3 are identical courses.

ME 10. Introduction to Engineering Mechanics (4) III. The Staff

Prerequisites: Math 3A–B.

Kinematics & Dynamics of a particle. Forces and free-body diagrams. Momentum, work, energy and moment of monentum. Motion under electric, magnetic, gravitational and mechanical forces.

ME 15. Statistics/Strength of Materials. (4) III. The Staff

Prerequisites: ME 10, Math 5A.

Hooke's law and properties of structural materials. Method of sections and virtual work and energy methods. Design applications to engineering structures, problems of tension, torsion, flexure and combined loading. Design beyond the elastic limit.

Upper Division Courses

101. Introduction to Mechanics of Solids. (4) I. Mr. Connell

Prerequisite: ME 10 and Math of lower division of engineering curriculum.

The basic principles of solid mechanics with applications to the design of structural members; mechanical properties of structural materials, description of stress and strain, Hooke's law, and the problems of tension, torsion, flexure, and combined loading.

ME 102. Physical Properties of the Ocean. (4) II. The Staff

Prerequisite: Junior standing.

Introduction to the world's oceans. Chemical composition. Pressure and temperature distribution. Waves, currents, tides. Mixing processes, turbulence, stratification. Shores and shore processes.

ME 103. Introduction to Marine Technology. (4) III. Mr. Connell

Prerequisites: ME 101, ME 102.

Materials and corrosion. Pressure vessel technology. Surface ships. Submerged structures. Hydrostatics and hydrodynamics; cavitation. Dynamics of underwater vehicles. Propulsion and control. Life support systems. Communication.

105. Introduction to Statistical Thermodynamics. (4) I. Mr. Milstein

Prerequisite: ME 10, Mathematics of the Lower Division of the Engineering curriculum.

Elements of quantum mechanics and classical thermodynamics; thermodynamic equilibrium and entropy. Statistical nature of thermodynamics. Maxwell-Boltzmann, Fermi-Direc, and Bose-Einstein statistics. Thermodynamic properties of matter. Paramagnetism, ionization, thermionic emission, free electron theory of metals, semiconductors.

ME 110. Interaction of Engineering Systems with the Earth's Environment. (3) III. The Staff

Prerequisite: Junior Standing in Engineering or consent of instructor.

Introduction to the interaction of engineering systems with the earth's environment. Areas to be covered include: pollution (air, water, noise, thermal), waste disposal and desalinization. Coverage includes the general nature and scope of problems, development of mathematical models of appropriate systems, and design of alternate engineering solutions.

ME 125. Special Topics in Mechanical Engineering (4) I, II, III. The Staff

Prerequisite: Consent of instructor.

Individual courses each concentrating on one area in the following subjects in mechanical engineering: design, fluid mechanics, heat transfer, combustion, structural dynamics, materials, biomechanics and modern developments.

130. Aerodynamics. (4) II. Mr. Bossel

Prerequisite. ME 152B.

Lift, drag, aerodynamic moments. Influence of wing and body parameters. Wing section characteristics. High lift devices. Potential solutions. Introduction to wing theory. Wings and bodies in subsonic, transonic, and supersonic flow. Aircraft performance in steady and accelerated flight.

131. Flight Mechanics. (4) II. Mr. Bossel

Prerequisite: ME 130, ME 155.

Stability and control in steady flight. Equations of unsteady motion; small disturbance theory. Stability derivatives. Stability for uncontrolled motion. Response to actuation of controls. Frequency response and aerodynamic transfer functions. Automatic stability and control.

132. Trajectory and Orbital Mechanics. (4) II. Mr. Thomson

Prerequisite: ME 10, and mathematics of the lower division curriculum.

Fundamentals of particle dynamics; two-body and central force problems; orbit determination; transfer orbits; orbital peturbations; long-range ballistic trajectories; powered flight trajectories; re-entry dynamics; lunar and interplanetary trajectories.

ME 140A–B–C. Theoretical Analysis in Mechanical Engineering. (4–4–4) I, II, III. Mr. Bruch

Prerequisites: Junior standing.

Introduction to the mathematical models of engineering problems and the methods of solution of the problems.

151A. Thermodynamics. (4) I. Mr. Marschall

Prerequisite: upper division standing.

The basic laws and concepts such as pressure, temperature, energy and entropy are discussed and their application to various systems are considered. Consideration is given to the molecular structure and physical properties of the solid, liquid, and gaseous states.

151B. Thermodynamics. (4) II. Mr. Marschall

Prerequisite: ME 151A.

A detailed study of the meaning of equilibrium and its implications. The statistical evaluation of thermodynamic properties and the application of principle to energy conversion systems is included.

ME 152A. Fluid Mechanics. (4) II. Mr. Kuby

Prerequisite: Lower division courses in engineering, physics and mathematics.

Introduction to the fundamental concepts in Fluid Mechanics and basic fluid properties. Basic equations of fluid flow. Dimensional analysis and similitude. Hydrodynamics.

ME 152B. Fluid Mechanics. (4) III. Mr. Kuby

Prerequisite: ME 152A.

Incompressible viscous flow. Boundary-layer theory. Introductory considerations for compressible flow. One dimensional and multidimensional compressible flow. Flow in open channels.

153. Heat Transfer. (4) I. Mr. Roemer

Prerequisite: Upper division standing.

The study of the fundamentals of heat transfer using the phenomena of conduction, radiation and convection; application and analysis of steady state, transient, and combined mode problems.

ME 155. Introduction to Control Systems. (4) II. Mr. Connell

Prerequisites: ME 10, ME 101, ME 140A, ME 163.

Study of linear feedback systems, transfer functions, stability, root locus, Nyquist and frequency response and state space techniques.

156A–B–C. Design. (3–3–3) I, II, III. The Staff

Prerequisite: ME 10, EE 6A, ME 101, ME 157, and junior level courses in mechanical engineering or equivalent.

Nature of engineering design. Carrying out of preliminary design. Illustrative material from actual case studies.

ME 157. Operations and Systems. (4) III. Mr. Vanyo

Prerequisites: ME 101, ME 151A–B, ME 152A, ME 140A–B.

An introduction to the treatment of engineering systems with complex interacting technical and socio-economic parts. Numerical and analytical optimization techniques. An introduction to probability and its application to decision making and engineering design.

158. Kinetic Theory and Statistical Thermodynamics. (4) III. Mr. Hickman

Prerequisite: ME 151A–B.

Theory, Maxwell Boltzmann equilibrium distribution, specific heat, transport properties, and quantum statistics.

159. Properties of Materials. (4) III. Mr. Milstein

Prerequisite: ME 151B or consent of instructor.

Bonding in solids, crytallography, alloys, phase diagrams, and diffusion. Theory of plastic deformation and fracture of metals.

160. Gas Dynamics. (4) II. Mr. Kuby

Prerequisite: ME 151A–B, 152A–B.

Resume of fundamentals of gas dynamics. Subsonic and supersonic two dimensional flows. Method of characteristics. Normal and oblique shocks. Real gas effects, and chemically reacting flow systems.

161. Vibrations in Linear Systems. (4) III.
Prerequisite: ME 155, ME 101. Mr. Thomson
Topics relating to vibration in mechanical systems; exact and approximate methods of analysis, matrix methods, generalized coordinates and Lagrange's equations, applications to systems with several degrees of freedom and to continuous systems.

ME 163. Intermediate Dynamics. (4) I.
Prerequisite: ME 1B. Mr. Vanyo
Advanced rigid body dynamics, conservation theorems, rotating coordinate systems. One degree of freedom free and forced vibration problems. Normal modes and natural frequencies of 2 degree of freedom systems. Introduction to Lagrange's equations.

165. Transport Properties. (4) III.
Mr. Hickman
Prerequisite: ME 152A–B, ME 153.
Momentum, energy, and mass transport in continuous media. Development of the properties viscosity, heat conductivity and diffusion.

166. Introduction to Theory of Elasticity. (4) II. Mr. Mitchell
Prerequisite: ME 101, ME 140A.
Fundamentals of classical theory of elasticity and applications. Thermodynamics of deformation. Elastic properties of crystals. Equilibrium of beams, plates, and shells. Elastic wave propagation. Vibration of beams and plates.

167. Propulsion. (3) I. Mr. Kuby
Prerequisite: ME 151A–B, ME 152A–B.
Thermodynamics, aerodynamics and combustion principles applied to gas turbines, rockets and ram jets. Analysis of compressible flow through ducts, nozzles and other engine components. Introduction to nuclear and electrical propulsion systems.

ME 170A–B–C. Biomedical Engineering. (3–3–3) I, II, III. Mr. Roemer
Prerequisite: Senior standing in engineering.
Application of engineering principles and methods to problems arising in the life sciences (medicine and biology); analysis of the function and principles of operation of living systems; modeling and simulation of psysiological regulatory systems; physiological philosophy of instrument design, etc.

199. Independent Studies in Mechanical Engineering. (1–5) I, II, III. The Staff
Directed individual study, normally experimental open to qualified seniors in the Department of Mechanical Engineering. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

ME 200. Professional Seminar. (1) I, II, III.
Prerequisite: Graduate standing. The Staff
A series of weekly lectures given by University staff members and outside experts in the fields of research or development pertinent to mechanical engineering.

201. Advanced Dynamics (3) I. Mr. Mitchell
Prerequisite: ME 163.
Conservation theorems; motion in gravitational and electromagnetic fields; guiding center approximation, collisions and scattering, rigid body motions; schuler tuning; Maxwell-Boltzmann Statistics.

202. Advanced Dynamics. (3) II. Mr. Mitchell
Prerequisite: ME 201.
Variational principles; normal modes; Liapunov stability, Hamiltonian mechanics, contact transformations; Hamilton-Jacobi and Eikonal equations, adiabatic invariants; ensembles and Liouville's theorem.

203. Nonlinear Mechanics. (3) III.
Prerequisite: ME 201. Mr. Thomson
Phase plane analysis; criteria of stability; study of Van der Pol. Duffing, Mathieu equations: Poincare-Bendixson theorem: method of Krylov-Bogoliuboff; equivalent linearization peturbation methods.

220. Inviscid Flow. (4) I. Mr. Hickman
Prerequisite: ME 152A–B.
Two-dimensional and axisymmetric stream functions. Vorticity and circulation. Stokes, Gauss, vortex theorems. Irrotational motion. Velocity potential. Basic solutions and superpositions; distributed singularities. Conformal mapping. Numerical and graphical methods.

221. Viscous Flow. (4) II. Mr. Hickman
Prerequisite: ME 152A–B.
Vectors, tensors, differential operators in curvilinear coordinates. Deformation, stress tensor. Transport properties. Navier-Stokes equations. Vorticity equation. Exact solutions of the Navier-Stokes equations. Flow at low (Stokes, Oseen) and at high Reynolds number. Boundary layer equations; similarity solutions, approximate solutions. Stability of laminar flows.

222. Compressible Flow. (4) III.
Prerequisite: ME 152A–B. Mr. Hickman
One-dimensional gas dynamics. Normal and oblique waves and shocks. Prandtl-Meyer expansion. Interaction and reflection. Method of characteristics. Equations of motion. Crocco's theorem. Vorticity, circulation and rotation. Velocity potential. Small perturbation theory. Subsonic and supersonic slender body theory. Similarity rules.

ME 224. Physical Gas Dynamics. (3) I.
Prerequisites: ME 222 and 251. Mr. Kuby
Behavior of equilibrium and nonequilibrium gas flows at very high temperatures including vibrational, translational, chemical, and radiative effects.

ME 225. Special Topics in Mechanics. (4) I, II, III. The Staff
Prerequisites: Advanced background and consent of instructor.
Individual courses, each concentrating on one of the following subjects in fluid and solid mechanics: boundary layers, turbulent flow, real fluids, physical gas dynamics, plasma dynamics, combustion, gyrodynamics, structural dynamics, stability, modern developments.

ME 230A. Advanced Astrodynamics. (3) II.
Prerequisite: ME 201. Mr. Mitchell
Newtonian potential; earth's gravitational field;

two-body problem; Hamilton-Jacobi theory; Lagrange perturbation equations; motion about oblate planet; vector theory of perturbations; lunisolar gravitational, and solar radiation, perturbations of earth satellites; properties of earth's atmosphere; orbit decay under atmospheric drag; motion of charged satellite in earth's magnetic field; motion of satellite in ionosphere.

ME 230B. Advanced Astrodynamics. (3) III.
Prerequisite: ME 201. Mr. Mitchell
Restricted three-body problem; Jacobi integral; Hill curves; dynamical properties of satellite in earth-moon system; motion near libration points; motion in cis-lunar space; stability of lunar orbits; spheres of influence; properties of interplanetary medium; interplanetary flight; limiting problems in space flight.

ME 231A. Plasma Dynamics. (3) I.
Prerequisites: 152A–B. Mr. Mitchell
Fluid description of plasma; Maxwell's equations; mechanical equations; Alfven's theorem; frozen-in fields; equilibrium configurations; force-free fields; magnetohydrodynamic waves; shock waves; stability. Applications to flight magnetohydrodynamics.

ME 231B. Plasma Dynamics. (3) II.
Prerequisite: ME 231A. Mr. Mitchell
Particle description of plasma; motion of charged particle in electromagnetic field; particle drift; radiation from accelerated charges; Boltzmann equation; steady state relaxation time; shieldings; Debye length; mean free path; electrical and thermal conductivities; waves and instabilities in plasmas. Applications e.g. to motion of space vehicle in ionized atmosphere.

ME 234A–B. Aerospace Structural Dynamics. (3–3) I, II. Mr. Connell
Prerequisites: ME 101 and graduate standing.
Behavior of elastic systems; system constraints; normal modes; virtual work method; generalized coordinates; Lagrange's equations; influence functions; matrix methods; damping; frequency response; random excitation.

ME 235AB. Quantum Mechanics. (4) II, III. Mr. Mitchell
Prerequisite: Consent of instructor.
Basic particle quantum mechanics; state vectors, mathematical and physical development; solutions of Schrodinger's equation; one dimensional applications; two state systems; spin; Heisneberg's formulation; fundamental dynamics; angular momentum; three dimensional applications; perturbation theory; identical particles; radiation.

ME 239. Conduction Heat Transfer. (3) I.
Prerequisite: ME 153. Mr. Roemer
Development of mathematical representation of conduction heat transfer and techniques available for analytical, analog and numerical solutions.

240. Convective Heat Transfer. (3) II.
Prerequisite: ME 153. Mr. Roemer
Solutions to the momentum, continuity and energy equations will be considered for both natural and forced convection. Applications to industrial problems, convective transfer in high-speed flows, heat transfer in rarefied flows, and the effects of chemical reactions on convective rates will be included.

241. Radiative Energy Transfer. (3) III.
Prerequisite: ME 153. Mr. Kuby
The physical nature of radiation and of its interaction with matter; conservation principles in radiative transfer and their relation to molecular and convective processes; and thermodynamic equilibrium with consideration of nondimensional parameters will be considered. Applications to astrophysics, combustion, and plasma technology will be discussed.

250. Advanced Thermodynamics. (3) II.
Prerequisite: ME 151A–B. Mr. Marschall
An extended treatment of the fundamentals of classical thermodynamics, including availability and reversibility, the chemical potential, properties of matter, thermochemistry, chemical equilibrium of real gases, and gas mixtures.

251. Statistical Thermodynamics. (3) III.
Prerequisite: ME 151A–B. Mr. Marschall

ME 251. Statistical Thermodynamics. (3) III.
Prerequisite: ME 151A–B. Mr. Marschall
An extended treatment of the fundamentals of statistical thermodynamics, equilibrium distributions, properties of gases, liquids and solids.

ME 255. Combustion. (3) I. Mr. Hickman
Prerequisite: ME 250.
Physical and chemical processes in combustion including flame propagation, detonation waves, ignition, chain reaction theory, combustion kinetics.

260. Engineering Materials. (3) III.
Prerequisite: ME 159. Mr. Milstein
Atomic bonding and structure of metals, semiconductors, and insulators, electronic structure of metals, Fermi surfaces, specific heat theory, electron emission from materials, paramagnetism and ferromagnetism.

ME 597. Individual Study for Master's and Ph.D. Comprehensive Examination. (1–12) I, II, III. The Staff
Prerequisite: Graduate standing.

ME 598AA–ZZ. Master's Thesis Research and Preparation. (1–12) I, II, III.
Prerequisite: Graduate standing. The Staff

ME 599AA–ZZ. Ph.D. Dissertation Preparation. (1–12) I, II, III. The Staff
Prerequisite: Graduate standing.

MIDDLE EASTERN STUDIES

Committee in Charge

David S. Gebhard, Ph.D., *Professor of Art.*
Chauncey S. Goodrich, Ph.D., *Associate Professor of Classical Chinese.*
Robert Hetzron, Ph.D., *Associate Professor of Hebrew.*
George M. Haddad, Ph.D., *Professor of History (Chairman of the Committee).*

Interdepartmental Major

The major in Middle Eastern Studies is an interdepartmental major designed for students who wish to pursue graduate study in this area or professional careers that require residence in, or knowledge of the Middle Eastern countries. It is also intended to serve the needs of those who desire a general education with special emphasis on this important area.

The selection of the courses should be made by the student in consultation with the committee in charge on the basis of the needs and objectives of the individual student.

Preparation for the Major

Students majoring in Middle Eastern Studies must take two years (24 units) in one of the languages of the area. This requirement can be satisfied at the present by either Arabic 1, 2, 3, 4, 5, 6 or Hebrew 1, 2, 3, 4, 5, 6. Students who have taken intensive language courses elsewhere and can demonstrate an equivalent level of competence, as judged by the committee in charge, may waive this requirement.

In addition, the student is required to take eight units of lower division work selected from the following: History 19B, Art 2A, Political Science 45, Religious Studies 30.

The Major

Forty units of upper division courses must be selected from the following: Anthropology 140, 156, Art 152 ABC, 165 B, Arabic 110 ABC, 140 ABC, Hebrew 110 ABC, 120 ABC, 199, Semitic Languages 101 ABC, 120 ABC, Geography 157, History 110, 145 AB, 146 AB, 195, Political Science 147, 196, Religious Studies 115, 116, 117, 119, 130, 131, 132, 134, 140, 141, 194 A or B.

In selecting the forty units, every major must take (from the preceding list) four units of anthropology, four units of history, four units of Arabic or Hebrew literature, four units of religious studies, and a senior seminar.

The Minor

Students desiring a minor in Middle Eastern Studies are required to take twelve units (one year) of lower division Arabic or Hebrew and twenty units of upper division courses selected from the same list as that of the major and should include four units of history and four units of religious studies.

MILITARY SCIENCE

William F. Brand, Jr., M.S., Colonel, Field Artillery, *Professor of Military Science (Chairman of the Department).*
Richard G. Fuller, M.A., Lt. Colonel, Armor, *Associate Professor of Military Science.*
Richard L. Hidalgo, B.A., *Major, Infantry, Associate Professor of Military Science.*
Charles E. Turner, Jr., B.A., Major, Armor, *Associate Professor of Military Science.*
Wesley B. Taylor, Jr., B.S., Captain, Infantry, *Assistant Professor of Military Science.*
David F. Rathje, B.A., Captain, Armor, *Assistant Professor of Military Science.*
Frederick R. Schremp, B.S., *Captain, Artillery, Assistant Professor of Military Science.*

The department offers a general Military Science curriculum designed to conform to the academic pattern of the Santa Barbara campus. Military Science classes are open to all students with the consent of the instructor.

The Military Science curriculum is a part of the Army Reserve Officers Training Corps (ROTC) program which leads to a commission as a second lieutenant in the U. S. Army. Enrollment in the ROTC program is on a voluntary basis, and is limited to qualified male students. Attendance at Leadership Laboratory is required for all ROTC students in addition to enrollment in Military Science courses.

The Army ROTC program is divided into two parts: (1) two years of lower division subjects, or Basic Course, to prepare the student for advanced instruction and (2) two years of upper division work, or Advanced Course, for selected male students. Satisfactory completion of Advanced Course and graduation from the university lead to a commission as a second lieutenant in the U. S. Army Reserve; distinguished students may qualify for a commission in the Regular Army.

Transfer students and others who did not take the Basic Course may receive equivalent ROTC credit for these classes by attending a six-week summer camp at a designated Army installation in the summer between their sophomore and junior year. Successful completion of this camp will qualify the student for direct entry into the Advanced Course. Attendees at this six-week summer camp are given an allowance for travel expenses and are paid for their period of camp attendance.

Admission to the upper division Advanced Course is limited to selected male students who meet all academic and physical requirements. Enrollees in this course must execute a contract with the U. S. Army agreeing to complete the course and accept a commission, if one is offered. In return, the student receives a 1D draft deferment and a cash payment of $50 per month for each school month he is enrolled in the program. Upon completion of the Advanced Course and graduation from the university the student is commissioned as a second lieutenant in one of the branches or arms of the U. S. Army. In so far as possible, the student's desires and academic major will be considered by the Army when making branch assignments.

Students selected for the advanced ROTC will attend a six-week summer camp between their junior and senior years. Attendees at this camp are given an allowance for travel expenses and are paid for their period of camp attendance. Additionally, the advanced ROTC student must in both the junior and senior year take a course of at least three units in one of the following fields: Effective Communications; Science Comprehension; General Psychology, Political Development and Political Institutions.

Scholarship Program. Army ROTC Scholarships are available for various terms to selected applicants. These scholarships pay all costs for tuition, books, and other student fees, and $50 per month cash to the student. Full 4-year scholarships are offered to high school seniors selected by nationwide competition examination. A limited number of three, two and one-year scholarships are available to outstanding students enrolled in the ROTC program at the university level. Full details are available at the Military Science department.

Flight Training Program. Flight training for qualified ROTC students is offered at no cost to the student during the senior year. Successful participation in the flight training program leads to an FAA private pilot license and prepares the student for the Army Flight School and a tour of duty in Army Aviation.

ROTC students desiring to obtain advanced degrees may, subject to the needs of the Army, be granted up to four years delay in reporting for active duty. For ROTC graduates, the period of active duty is normally two years, but may be less, contingent upon the needs of the service. Students accepting ROTC scholarships and/or flight training may be required to serve longer terms of active duty.

Military Science

Lower Division Courses

MS 1A. US Defense Establishment. (1) LTC Fuller

The study of the development of the U. S. Defense Establishment from the American Revolutionary War through World War II, to include its origins and constitutional basis, its evolution and emergence as a professional military force. Leadership laboratory required for all ROTC students.

MS 1B. US Defense Establishment. (1) LTC Fuller

The study of the development, organization and functions of the Department of Defense. Includes studies of the roles, missions and organization of the various armed services and of collective defense agreements. Leadership laboratory required for all ROTC students.

MS 1C. US Defense Establishment. (1) LTC Fuller

The study of the varied missions of the U. S. Army, to include military assistance and civic action programs, public works tasks, development of reserve forces and training for unconventional warfare. Leadership laboratory required for all ROTC students.

MS 2A. American Military History. (2) MAJ Hidalgo

Study of selected battles and campaigns of the American Revolutionary War, War of 1812, and the War with Mexico. Leadership laboratory required for all ROTC students.

MS 2B. American Military History. (2) MAJ Hidalgo

Study of selected battles and campaigns of the American Civil War, War with Spain and the First World War. Leadership laboratory required for all ROTC students.

MS 2C. American Military History. (2) MAJ Hidalgo

The study of selected battles and campaigns of World War II, the Korean Conflict and an in depth study on unconventional warfare. Leadership laboratory required for all ROTC students.

Upper Division Courses

Prerequisite: Completion of lower division courses or equivalent.

MS 103A. Principles of Leadership and Communications. (2) CPT Schremp

The study of the principles of leadership, responsibilities and basic qualities of a leader, leadership traits and special problems of military leadership. The study of theories of management and organizational behavior and of the decision making process. Additionally, familiarization with communication systems and procedures used in the military team. Leadership laboratory required for all ROTC students.

MS 103B. Advanced Tactical Theory. (2) MAJ Turner

The advanced study of tactical theory within the framework of the military team. Familiarization with small military unit organization and operations. Fundamentals of offensive and defensive combat and their application. Includes one field trip as course requirement. Leadership laboratory required for all ROTC students.

MS 103C. Principles of Military Instruction. (2) CPT Schremp

Introduction to military teaching techniques and principles of planning instruction. Familiarization with methods of instruction and practical application by the student, who is required to prepare several presentations, which include teaching a lesson, and use of closed-circuit television for self-evaluation. Leadership laboratory required for all ROTC students.

MS 104A. Military Management. (2) CPT Taylor

The study of the fundamentals of decision making, command and control problems, staff relationships, evaluation of situations and analysis of courses of action. Leadership laboratory required for all ROTC students.

MS 104B. Fundamentals of Military Law and Military Intelligence. (2) CPT Schremp

The study of military law and the fundamental concepts of military judicial procedures contained in the Uniform Code of Military Justice; rules of evidence, pre-trial, trial and appellant procedures. Familiarization with basic principles of military combat intelligence and counterintelligence procedures. Leadership laboratory required for all ROTC students.

MS 104C. World Change and Military Implications. (2) CPT Taylor

An analysis of the strategic importance of major nations and power blocs of the world in terms of economic, geographic and military power, and the effect on the U. S. position in world affairs. Contrasted with military participation in internal defense developments. Leadership laboratory required for all ROTC students.

MUSIC

Helen M. Barnett, M.A., *Professor of Music, Emeritus.*
Lloyd Browning, M.A., *Professor of Music, Emeritus.*
Roger E. Chapman, Ph.D., *Professor of Music, Emeritus.*
Van A. Christy, Ph.D., *Professor of Music, Emeritus.*
Karl Geiringer, Ph.D., *Professor of Music, Emeritus.*
Erno Daniel, P.S.D., *Professor of Music.*
[4]Maurice E. Faulkner, Ph.D., *Professor of Music.*
Peter Racine Fricker, F.R.C.O., *Professor of Music (Chairman of the Department).*
John E. Gillespie, Ph.D., *Professor of Music.*
Theodor Göllner, Ph.D., *Professor of Music.*
Stefan Krayk, License de Concerts, *Professor of Music.*
Dorothy L. Westra, M.S.M., *Professor of Music.*
Clayton Wilson, M.M., *Professor of Music.*
Carl Zytowski, M.A., *Professor of Music.*
Dolores M. Hsu, Ph.D., *Associate Professor of Music.*
Stanley D. Krebs, Ph.D., *Associate Professor of Music.*
[2]Peter A. Mark, M.S., *Associate Professor of Music.*
Wendell A. Nelson, D.M., *Associate Professor of Music.*
Landon Young, M.M., *Associate Professor of Music.*
Edward Applebaum, Ph.D., *Assistant Professor of Music.*
Roger D. Grove, M.M., *Assistant Professor of Music.*
Cecil Hill, Ph.D., *Assistant Professor of Music.*
Geoffrey B. Rutkowski, M.M., *Assistant Professor of Music.*
Burnett F. Atkinson, B.Mus., *Lecturer in Music.*
Suzanne J. Balderston, B.Mus., *Lecturer in Music.*
Albert L. Campbell, M.A., *Lecturer in Music.*
Ennis A. Fruhauf, M.M., *Lecturer in Music.*
James Kanter, B.A., *Lecturer in Music.*
Peter A. Mercurio, *Lecturer in Music.*
Ronald Ondrejka, M.M., *Lecturer in Music.*
Doyle C. Preheim, M.M., *Lecturer in Music.*
Sarah J. Spears, M.M., *Lecturer in Music.*
Richard L. Anshutz, M.M., *Associate in Music.*
David C. Farrar, D.M.A., *Associate in Music.*
Waldemar Linder, B.Mus., *Associate in Music.*

THE MAJOR

The Department of Music offers programs designed to serve as a background for professional or educational work in music, as preparation for graduate studies, or as an area of concentration for a liberal arts education.

The following five areas of emphasis are offered:

1. Theory-History
2. Theory-Composition
3. Sacred Music
4. Performance
5. Special Performance

REQUIREMENTS FOR THE MAJOR

Students majoring in music must meet the general education requirements as specified by the catalog. The Department recommends History 4A–B–C, and French, German, or Italian as a language.

All new music majors, whether freshmen or transfers from other institutions or departments, are required to take placement tests in music theory and performance. Students must pass the sophomore audition, participate in and attend student recitals, and engage in at least one performance laboratory per quarter with or without credit. Students transferring from other institutions are required to complete at least three quarters within the Department.

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[2] Absent on leave winter and spring, 1972.
[4] Sabbatical leave, 1971–72.

THEORY-HISTORY EMPHASIS

Preparation for the major: Music 2; 5A,B,C,D,E; 7; sophomore paper; and 31–32 or 33 (6 units or less, determined by proficiency in entrance audition).

The major: 40 upper division units: Music 101, or 102, or 103; 106A; 112A–B–C; 18 units in theory and/or history courses selected with the guidance of a faculty adviser; Music 198 (a senior research paper, meeting standards approved by the faculty of the Department, required of all theory-history majors).

THEORY-COMPOSITION EMPHASIS

Preparation for the major: Music 2; 5A–B–C–D–E; 7; sophomore paper; and 31–32 or 33 (6 units or less, determined by proficiency in entrance audition).

The major: 40 upper division units: Music 101, or 102, or 103; 106A; 112A–B–C; 18 units in theory and/or composition courses selected with the guidance of a faculty adviser; 198 (a senior composition, meeting standards approved by the faculty of the Department, required of all theory-composition majors).

SACRED MUSIC EMPHASIS

Preparation for the major: Music 2; 5A–B–C–D–E; 7; sophomore paper; and 31–32 or 33 (6 units or less, determined by proficiency in entrance audition).

The major: 40 upper division units: Music 101, or 102, or 103; 106A; 112A–B–C; 120A–B; 173A–B; six units in related courses selected with the guidance of a faculty adviser; Music 198 (a senior paper, meeting standards approved by the faculty of the Department, required of all sacred music majors).

PERFORMANCE EMPHASIS

Preparation for the major: Music 2; 5A–B–C–D–E; 7; sophomore audition; and 31–32 or 33 (6 units or less, determined by proficiency in entrance audition).

The major: 40 upper division units: Music 101, or 102, or 103; 106A; 112A–B–C; 18 units in performance courses selected with the guidance of a faculty adviser; Music 198 (a senior performance audition, meeting standards approved by the faculty of the Department, required of all performance majors).

SPECIAL PERFORMANCE EMPHASIS

This is a specialized performance major in any of the following areas: conducting, piano, carillon, organ, harpsichord, voice, flute, oboe, clarinet, bassoon, trumpet, French horn, trombone, violin, violoncello, contrabass, percussion and harp. A high standard of performance must be shown in a special entrance audition.

Preparation for the major: Music 2; 5A–B–C–D–E; 7; sophomore audition; and 31–32 or 33 (6 units or less, determined by proficiency in entrance audition).

The Major: 40 upper division units: Music 101, or 102, or 103; 112A–B–C: and 24 units in performance courses selected with the guidance of a faculty adviser, but to include Music 197 and 198 (a senior audition as well as a senior recital, meeting standards approved by the faculty of the Department, required of all special performance majors).

The Minor in Music

Thirty units are required, of which at least ten must be in upper division courses. Details regarding specific requirements of the general music minor or the credential minor are available in the departmental office.

THE DEGREE OF MASTER OF ARTS

Two different Master of Arts degrees are available in music. One, which involves a thesis or composition, is described in 1, below. The other, Master of Arts degree in musical performance, which involves a recital and supporting document, is described in 2. See page 78 for the general requirements for admission to graduate status.

1. The Master of Arts Degree in Musicology or Composition.
   - A. Following guidance examinations taken at entrance, the department may specify certain prerequisites to remedy any deficiencies in the student's undergraduate background. Normally such courses will not be included in the 36 units described below. Ordinarily more than three quarters will be needed to complete the following requirements.
   - B. Requirements:
     - (1) A minimum of 36 units distributed as follows:
       - (a) (i) Musicology: thirteen graduate units in Music 200A–B, 269A and two courses chosen from 261 through 268.
         - (ii) Composition: sixteen graduate units in Music 200A–B, 269A–B and two courses chosen from 261 through 268.
       - (b) Twenty-three units (for musicology), or twenty units (for composition) to be selected with the guidance of a faculty adviser. At least three of these units must be in graduate courses; the remainder may be in upper division courses. Further, these units must include three units in a liberal arts area outside of music and three units of upper division performance. However, if the student's work in performance is on the graduate level, the upper division requirements in performance will be waived, and the student will be allowed a maximum of six units of graduate level performance which will include the presentation of a graduate recital.
     - (2) A satisfactory reading knowledge of French, or German, or Italian must be demonstrated by examination. In certain cases the department may accept substitution of another foreign language for one of those listed above.
     - (3) Depending upon the chosen field of emphasis, a thesis or a composition (more than one movement and at least 20 minutes in length), to be completed satisfactorily.
2. The Master of Arts Degree in Musical Performance or Conducting.
   - A. Students entering the program leading to the Master of Arts Degree in Musical Performance will normally be expected to possess an A.B. degree in Music from UCSB with a Special Performance Emphasis or a degree based on equivalent training. An entrance audition demonstrating graduate level ability in performance must meet with the approval of an appropriate faculty committee. Ordinarily more than four quarters will be needed to complete the following requirements.
   - B. Requirements:
     - (1) A minimum of 48 quarter units distributed as follows:
       - (a). 18 units of graduate level performance consisting of Music 220, Graduate Performance (6–12 units); Music 221, Graduate Chamber Music (0–6 units); Music 295, Graduate Recital (6 units). Students majoring in conducting shall take Music 230, Graduate Instrumental Conducting (8 units); and Music 231, Graduate Vocal Conducting (4 units); instead of Music 220 and Music 221.
       - (b). Fourteen units of graduate level history and literature including Music 200A (2 units), and two courses selected from Music 261 through 269A–B (6 units); the remaining six units are to be selected with the guidance of a faculty adviser.
       - (c). 16 units of electives which may include upper division courses and courses outside the department to be selected with the guidance and *approval* of the Graduate Adviser. From 2–6 upper division ensemble units will be required and will be accepted as part of the 16 units of electives.
     - (2) Proficiency in at least one foreign language must be demonstrated. The foreign language selected must have the approval of the department.

(3) In addition to the course work, certain performances in public are required as follows: a graduate recital; a graduate chamber or solo performance; and, including the above, at least one significant performance each quarter. Students majoring in conducting are not required to offer a graduate chamber or solo performance. A record of the graduate recital (which will normally occur in the final quarter) in the form of a tape of the actual performance will be placed in the departmental archives. A written document is to be completed by the candidate giving the historical background and an analysis of the recital material.

THE DEGREE OF DOCTOR OF PHILOSOPHY

1. In addition to fulfilling the general requirements for admission to graduate status, the department requires completion of an M.A. degree in music from UCSB, or a degree based on equivalent training. Students having a degree from another institution must take a placement examination during the first quarter of residence. Students who do superior work may bypass the master's degree and proceed directly to the Ph.D.
2. The student must demonstrate by examination a reading knowledge of French and German and of such other languages as the field of specialization may require. One such examination should normally be passed before the M.A. degree is earned.
3. Students working toward the Ph.D. degree are required to take 30 units in specified courses in the history and theory of music, or composition including those seminars in the Music 261 through 269 series that have not previously been taken. The Ph.D. candidate is also required to take 4 units in philosophy and 8 units in an approved field outside of music. Those qualified in performance may earn 3 graduate units by means of a lecture-recital given before the qualifying examinations.
4. Before he is admitted to candidacy, the student must pass a series of written and oral qualifying examinations in music, history, theory, bibliography and literature covering the whole range of music history and theory.
5. A dissertation or a composition giving evidence of ability to conduct independent research of high quality, is required of all candidates. Upon its acceptance, the candidate will defend it in an oral examination.

TEACHING CREDENTIALS

The Major with Credential

A major in music may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. In addition to the courses listed above for the departmental major, the teaching major requires 42–48 units in the following: Music 151A–B, 152, 153, 154, 20A–B (or 25), 108, 120A–B, MI 290, MV 290, and M 292A–B–C–D–E–F. Some of these units may be used as electives within the major.

The Minor with Credential

Thirty units are required, of which ten must be upper division units. These are to include Music 11, 15, 122, and nineteen units selected with the approval of an adviser, including an upper division course in the history and appreciation of music.

For further information concerning teaching credentials, students should confer with designated counselors in the Department of Music and the Graduate School of Education.

MUSIC

Lower Division Courses

2. Freshman Music History Survey. (3) I, III.

For the major. The Staff

A survey of Western music and musical style from early Christian times to the present.

5A–B–C–D–E. Music Theory. (4–4–4–4–4) I, II, III.

The Staff (Mr. Krebs in charge)

For the major.

Prerequisite: Music 11 or passing grade on Theory placement exam. Classwork in harmony and counterpoint is based on music from the 18th to the 20th century. Laboratory work is in musicianship and ear-training.

7. Form and Analysis. (3) III. Mr. Applebaum
For the major.
Prerequisite: Music 5E or consent of the instructor.
Studies in the structure of tonal music with emphasis on the development of skill in analysis.

11. Fundamentals of Music. (4) I, II, III.
Primarily for the nonmajor. The Staff
The study of notes, scales, triads and inversions. Orientation to the keyboard, sight-singing and ear-training.

15. Music History and Appreciation. (4) I, II, III.
The Staff (Mr. Gillespie in charge)
For the nonmajor.
A selective survey of music of Western Civilization; evolution of forms, styles, media. Designed to enable the student to listen with understanding.

16. Masterworks of Music. (4) I, II, III.
Mr. Rutkowski, Mrs. Spears
For the nonmajor.
Prerequisite: Music 15 or permission of the instructor.
An intensive and detailed study of a selected group of important musical compositions.

17. Non-Western Music. (4) I. The Staff
A study of the music of selected peoples of non-Western cultures, including a consideration of musical form and structure, performance practice, and the history and social context of the music.

19. Harp. (1) I, II, III. Mrs. Balderston
Prerequisite: Music 31A or permission of instructor.
May be repeated for credit up to 9 units.

20A–B–C–D–E–F. Elementary Voice. (2–2–2–1–1–1) I, II, III.
Miss Westra, Mrs. Spears
Prerequisite: Music 11 or permission of instructor.
Primarily for the instrumental music major and the music minor.

24. Carillon. (1) I, II, III. Mr. Fruhauf
Prerequisite: Music 33 or equivalent and permission of instructor.
May be repeated for credit up to 9 units.

25. Intermediate Voice. (1) I, II, III.
Mr. Zytowski, Miss Westra, Mrs. Spears
For the vocal major. May be repeated for credit up to 9 units.

26. Intermediate Strings. (1) I, II, III.

Lec. 1. Violin.	Mr. Krayk
Lec. 2. Viola.	Mr. Mark
Lec. 3. Cello.	Mr. Rutkowski
Lec. 4. Double Bass.	Mr. Mercurio

May be repeated for credit up to 9 units.

27. Intermediate Woodwinds. (1) I, II, III.
(Mr. Wilson in charge)

Lec. 1. Oboe.	Mr. Wilson
Lec. 2. Flute.	Mr. Atkinson
Lec. 3. Clarinet.	Mr. Kanter
Lec. 4. Bassoon.	Mr. Farrar

May be repeated for credit up to 9 units.

28. Intermediate Brass. (1) I, II, III.
Mr. Faulkner, Mr. Linder
May be repeated for credit up to 9 units.

29. Intermediate Percussion. (1) I, II, III.
Mr. Faulkner
May be repeated for credit up to 9 units.

30. Organ. (1) I, II, III.
Mr. Campbell, Mr. Fruhauf
Prerequisite: Music 31A–B or equivalent and permission of instructor. May be repeated for credit up to 9 units.

31A–B–C. Basic Piano. (1–1–1) I, II, III.
The Staff (Mr. Grove in charge)
Placement by audition. Primarily for Music majors, and Music minors.

32A–B–C–D–E–F. Class Piano. (1–1–1–1–1–1) I, II, III.
Mr. Grove, The Staff
Placement by audition. Primarily for Music majors, and Music minors.

33. Intermediate Piano. (1) I, II, III.
Mr. Nelson, Mr. Daniel,
Mr. Grove, Mr. Young
May be repeated for credit up to 9 units. For piano majors only.

Performance Laboratories

Courses 34 through 48 may be repeated for credit up to 6 units. Enrollment by audition or permission of instructor.

34. The Chamber Singers. (1) I, II, III.
Miss Westra

35. Women's Glee Club. (1) I, II, III.
Miss Westra

35S. Women's Glee Club—The Dorians. (1) I, II, III. Miss Westra
Concurrent enrollment in Music 35 required.

36. Men's Glee Club. (1) I, II, III.
Mr. Zytowski

36S. Men's Glee Club—Schubertians. (1) I, II, III. Mr. Zytowski
Concurrent enrollment in Music 36 required.

37. Repertory Chorus. (1) I, II, III. The Staff

38. Opera Workshop. (1) I, II, III.
Mr. Zytowski

39. Performance Workshop. (1) I, II, III.
The Staff

41. Piano Ensemble. (1) I, II, III.
Mr. Daniel, Mr. Nelson, Mr. Grove

42. Orchestra. (1–3) I, II, III. Mr. Ondrejka

44. Chamber Music Ensemble. (1) I, II, III.
Mrs. Balderston, Mr. Krayk,
Mr. Rutkowski, Mr. Mark, Mr. Young
May be repeated for credit up to 9 units.

45. Brass Choir. (1) I, II, III. Mr. Faulkner

46. Woodwind Ensemble. (1) I, II, III.
Mr. Wilson, Mr. Atkinson, Mr. Kanter

47. Symphonic Wind Ensemble. (1) I, II, III.
The Staff

47S. Studio Band. (1) I, II, III. The Staff

48. Musica Antiqua. (1) I, II, III.
For vocalists and instrumentalists. Mr. Göllner

Upper Division Courses

101. Twentieth Century Techniques. (4) I.
Mr. Applebaum
Prerequisite: Music 5E or equivalent.

102. Sixteenth Century Counterpoint. (4) II.
The Staff
Prerequisite: Music 5E or equivalent.

103. Canon and Fugue. (4) II. Mr. Krebs
Prerequisite: Music 5E or equivalent.

104. Advanced Counterpoint. (4) I. The Staff
Prerequisite: Music 101, 103 or equivalent.

106A–B. Orchestration. (4–4) I, II.
Mr. Faulkner
Prerequisite: Music 5E or equivalent. 106A or its equivalent is prerequisite to 106B.

107. Advanced Orchestration. (2–4) III.
Mr. Fricker
Prerequisite: Music 106A–B or equivalent.

108. Composition. (4) I, III. The Staff
Prerequisite: Music 5E or permission of instructor.

109. Advanced Composition. (2–6) II.
The Staff
Prerequisite: Music 108 or equivalent.

110A–B–C. Score Reading and Analysis.
(2–2–2) I, II, III. Mr. Ondrejka
Prerequisite: Music 5E or equivalent, 7, and permission of instructor.

111. Jazz Arranging. (2–4) III. The Staff
Prerequisite: Permission of instructor.

112A–B–C. History and Analysis of Music.
(4–4–4) I, II, III. Mr. Göllner,
Mr. Hill,, Mrs. Hsu
Prerequisite: Music 5E, 7. For the major.

113. History and Literature of Russian Music.
(4) III. Mr. Krebs
Prerequisite: Music 15 or equivalent. For the non-major. A survey of Russian music from its beginnings, but emphasizing the romantic and modern (Soviet) periods.

***114. History of Jazz.** (4) III. The Staff
Prerequisite: Music 15 or equivalent and permission of the instructor. Primarily for the non-major.

115A. Symphonic Literature. (4) I, II.
Mr. Rutkowski, Mr. Mark
Prerequisite: Music 15 or equivalent. For the non-major.

115B. History and Literature of the Concerto (4) III. Mr. Nelson
Prerequisite: Music 15 or equivalent. For the non-major.

***116. History and Literature of Hispanic-American Music.** (4) II. Mr. Gillespie
Prerequisite: Music 15 or equivalent. For the non-major.

117. History and Literature of Opera. (4) II.
Mr. Zytowski
Prerequisite: Music 15 or equivalent. For the non-major.

118. History and Literature of Chamber Music. (4) III. Mr. Krayk
Prerequisite: Music 15 or equivalent. For the non-major.

119. History and Literature of Keyboard Music. (4) III. Mr. Gillespie
Prerequisite: Music 15 or equivalent. For the non-major.

120A–B–C. Conducting. (2–2–2) I, II, III.
Mr. Ondrejka
Prerequisite: Music 5E or permission of instructor.

121A–B–C. Projects in Conducting.
(2–2–2) I, II, III. Mr. Ondrejka
Prerequisite: Music 120C or equivalent.

122. Fundamentals of Conducting. (3) III.
The Staff
Prerequisite: Music 11, 31A–B. For music minors.

123 Advanced Harp. (1–2) I, II, III.
Mrs. Balderston
Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

124. Advanced Carillon. (1–2) I, II, III.
Mr. Fruhauf
Prerequisite: Passing of sophomore audition. May be repeated for credit up to 12 units.

125. Advanced Voice. (1–2) I, II, III.
Mr. Zytowski, Miss Westra, Mrs. Spears
Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

126. Advanced Strings. (1–2) I, II, III.

Lec. 1. Violin.	Mr. Krayk
Lec. 2. Viola.	Mr. Mark
Lec. 3. Cello.	Mr. Rutkowski
Lec. 4. Double Bass.	Mr. Mercurio

Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

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* Not to be given 1971–72.

127. Advanced Woodwinds. (1–2) I, II, III. (Mr. Wilson in charge)

Lec. 1. Oboe. Mr. Wilson
Lec. 2. Flute. Mr. Atkinson
Lec. 3. Clarinet. Mr. Kanter
Lec. 4. Bassoon. Mr. Farrar

Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

128. Advanced Brass. (1–2) I, II, III. Mr. Faulkner, Mr. Linder

Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

129. Advanced Percussion. (1–2) I, II, III. Mr. Faulkner

Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

130. Advanced Organ. (1–2) I, II, III. Mr. Campbell, Mr. Fruhauf

Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

131. Harpsichord. (1–2) I, II, III. Mr. Gillespie, Mr. Fruhauf

Prerequisite: Permission of instructor.
May be repeated for credit up to 12 units.

***132A–B–C. Piano Accompanying.** (2–2–2) I, II, III. Mr. Grove

133. Advanced Piano. (1–2) I, II, III. Mr. Nelson, Mr. Daniel, Mr. Grove, Mr. Young

Prerequisite: Passing of sophomore audition.
May be repeated for credit up to 12 units.

151A–B. Strings. (2–2) I, II. The Staff

Primarily for the credential.
Should be taken consecutively.
151A. Violin and Viola.
151B. Cello and Double Bass.

152. Brass. (3) I. Mr. Faulkner

Primarily for the credential.

153. Woodwinds. (3) III. Mr. Wilson

Primarily for the credential.

154. Percussion. (2) II. Mr. Faulkner

Primarily for the credential.

162A. Early Instrumental Music. (4) II. Mr. Hill

Prerequisite: Music 112A–B–C or permission of instructor.

162B. Orchestral Music. (4) III. Mr. Hill

Prerequisite: Music 112A–B–C or permission of instructor.

163. Keyboard Music. (4) I. Mr. Gillespie

Prerequisite: Music 112A–B–C or permission of instructor.

164. Chamber Music. (4) III. Mr. Mark

Prerequisite: Music 112A–B–C or permission of instructor.

165. Art Song. (4) II. Miss Westra

Prerequisite: Music 112A–B–C or permission of instructor.

166. The Concerto. (4) II. Mr. Nelson

Prerequisite: Music 112A–B–C, or permission of instructor.

173A–B. History and Literature of Church Music. (4–4) II, III. Mr. Gillespie

Prerequisite: Music 112A or permission of instructor.

***175. Contemporary Jazz.** (4) II. The Staff

Prerequisite: Permission of the instructor. Primarily for the major.

176. Tudor and Jacobean Music. (4) III. Mr. Hill

Prerequisite: Music 112A–B–C or permission of instructor.

177. Opera and Music Drama. (4) III. Mr. Zytowski

Prerequisite: Music 112C or permission of instructor.

A study of the history and literature of opera and music drama from its origins to the present day.

178. History of Musical Instruments. (4) II. The Staff

Prerequisite: Music 112A or permission of instructor.

A study of the development and use of musical instruments from classical antiquity to the present day.

179. Studies in Medieval Music. (4) I. Mr. Göllner

Prerequisite: Music 112A or permission of instructor.

Primarily for the major emphasizing history and theory.

Introduction to the liturgy and music of the Middle Ages based on manuscripts from the Santa Barbara Mission.

***180. Studies in Renaissance Music.** (4) II. Mr. Göllner

Prerequisite: Music 112A–B or permission of instructor.

Primarily for the major emphasizing history and theory.

Cantus firmus settings of the fifteenth century. Chanson and motet. The parody mass of the sixteenth century.

181. Studies in Baroque Music. (4) II. Mr. Gillespie

Prerequisite: Music 112A–B or permission of instructor.

182. Studies in Classic Music. (4) I. Mrs. Hsu

Prerequisite: Music 112A–B–C, or permission of instructor.

183. Studies in Romantic Music. (4) III. Mrs. Hsu

Prerequisite: Music 112A–B–C, or permission of instructor.

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* Not to be given 1971–72.

184. Studies in Contemporary Music. (4) II. Mr. Fricker
Prerequisite: Music 112A–B–C, or permission of instructor.

185. Music Criticism. (4) III. The Staff
Prerequisite: Music 112A–B–C, or permission of instructor.

197. Senior Recital. (2) I, II, III. The Staff
Prerequisite: Permission of instructor.

198. Senior Auditions. (2) I, II, III. The Staff
Required for graduation.
Senior Audition or paper.

199. Independent Studies in Music. (1–5) I, II, III. The Staff
Open to qualified seniors.
199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Performance Laboratories

Courses 134 to 148 may be repeated for credit up to 9 units. Admission by audition or permission of instructor.

134. The Chamber Singers. (1) I, II, III. Miss Westra

135. Women's Glee Club. (1) I, II, III. Miss Westra

135S. Women's Glee Club—The Dorians. (1) I, II, III. Miss Westra
Concurrent enrollment in Music 135 required.

136. Men's Glee Club. (1) I, II, III. Mr. Zytowski

136S. Men's Glee Club—Schubertians. (1) I, II, III. Mr. Zytowski
Concurrent enrollment in Music 136 required.

137. Repertory Chorus. (1) I, II, III. The Staff

138. Opera Workshop. (1) I, II, III. Mr. Zytowski

139. Performance Workshop. (1) I, II, III. The Staff

141. Piano Ensemble. (1) I, II, III. Mr. Daniel, Mr. Nelson, Mr. Grove

142. Orchestra. (1–3) I, II, III. Mr. Ondrejka

144. Chamber Music Ensemble. (1) I, II, III. Mrs. Balderston, Mr. Krayk, Mr. Mark, Mr. Rutkowski, Mr. Young

145. Brass Choir. (1) I, II, III. Mr. Faulkner

146. Woodwind Ensemble. (1) I, II, III. Mr. Wilson, Mr. Atkinson, Mr. Kanter

147. Symphonic Wind Ensemble. (1) I, II, III The Staff

147S. Studio Band. (1) I, II, III. The Staff

148. Musica Antiqua. (1) I, II, III.
For vocalists and instrumentalists. Mr. Göllner

Graduate Courses

200A–B. Bibliography and Research Techniques. (2–2) I, II. Mrs. Hsu

201A–B–C. Notation and Music: Their Historical Interrelation. (3–3–3) I, II, III Mr. Göllner
A. Plainchant-Neumes-Polyphony-Modal Notation.
B. Origin and Development of the Mensural System.
C. Instrumental Tablatures for Keyboard and Lute.

207. Seminar in Orchestration. (3) II. Mr. Applebaum

208A–B–C. Graduate Composition. (3–3–3) I, II, III. Mr. Fricker

220. Graduate Performance. (2) I, II, III. The Staff
Prerequisite: Audition required for entrance. May be repeated for credit up to 6 units.

221. Graduate Chamber Music. (2–6) I, II, III. The Staff
Prerequisite: Permission of instructor.
Performance in chamber ensembles.

230. Graduate Instrumental Conducting (2) I, II, III. Mr. Ondrejka
Prerequisite: Audition required for entrance. May be repeated for credit up to 8 units.

231. Graduate Vocal Conducting. (2) I, II, III. Mr. Ondrejka
Prerequisite: Audition required for entrance. May be repeated for credit up to 4 units.

250. Master's Seminar in Music Theory. (4) I. The Staff

***261. Seminar in Music of the Early Middle Ages.** (3) I. Mr. Göllner
The beginnings of polyphony in treatises and practical sources. The school of Notre Dame. The motet of the thirteenth century.

***262. Seminar in Music of the Late Middle Ages.** (3) II. Mr. Göllner
Fourteenth century secular music in Italy and France. The motet from Ph. de Vitry to G. de Machaut, Polyphonic settings of the Mass ordinary.

***263. Seminar in Music of the Renaissance.** (3) III. Mr. Göllner
G. Dufay and the beginnings of the Netherlands School. Vocal and instrumental aspects of sixteenth century music. The rise of instrumental music in the fifteenth and sixteenth century.

264. Seminar in Music in the Early Baroque Period. (3) I. The Staff

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* Not to be given 1971–72.

265. Seminar in Music of the Late Baroque Period. (3) II. Mr. Göllner

266. Seminar in Music of the Classical Period. (3) III. Mr. Göllner

***267. Seminar in Music of the Early Romantic Period.** (3) II. Mrs. Hsu

268. Seminar in Music of the Late Romantic Period. (3) III. Mrs. Hsu

269A. Seminar in Twentieth Century Music before 1945. (3) II. Mr. Fricker

269B. Seminar in Music since 1945. (3) III. Mr. Fricker

270A–B. Master's Seminar in Music Education. (3–3) II, III. Mr. Faulkner

***273. Seminar in Church Music.** (4) I. Mr. Gillespie

275. Seminar in Music Criticism. (3) II. Mrs. Hsu

***276. Seminar in Style and Form in Twentieth Century Music.** (4) III. Mr. Fricker

A detailed study of specially chosen major works of present day music.

278. Seminar in History of Musical Instruments. (3) III. The Staff

***283. Seminar in Philosophy and History of Music Education.** (4) II. Mr. Faulkner

289. Transcription, Editing and Performance of Early Music. (2) I, II, III. The Staff

May be repeated for credit.

295. Graduate Recital. (2–6) I, II, III. The Staff

Preparation of public recital required for degree.

594AA–594ZZ. Special Topics. (1–4) I, II, III. The Staff

Special seminar in selected problems of current musicology, composition, or performance.

595AA–595ZZ. Group Studies. (3) I, II, III. The Staff

Critical review of research in selected problems of musicology, composition, or performance.

596AA–596ZZ. Directed Reading and Research. (2) I, II, III. The Staff

Individual tutorial for research in musicology, composition, or performance; Instructor will usually be student's major professor.

597AA–597ZZ. Individual Study for Ph.D. Examinations. (1–4) I, II, III. The Staff

Instructor will be student's major professor or chairman of his doctoral committee.

598AA–598ZZ. Preparation for the Master's Degree. (1–4) I, II, III. The Staff

Instructor will be chairman of student's thesis committee, directing research in musicology, composition, or performance. Maximum of 12 units total.

599AA–599ZZ. Ph.D. Dissertation Preparation. (1–4) I, II, III. The Staff

Instructor will be chairman of student's doctoral committee. Maximum of 12 units total.

Related Courses in Other Departments

Education ME 190A–B. Piano Pedagogy. (2–2) I, II. Mr. Grove

Prerequisite: Open to all music majors and minors with permission of instructor.

A study of basic principles of teaching; includes a survey and evaluation of methods and materials.

Education MI 290. Curriculum and Instructional Procedures and Materials Used in the Teaching of Instrumental Music. (3) I. Mr. Faulkner

Prerequisite: Music 151A–B, 152, 153, 154 or permission of instructor.

Includes methods in both elementary and secondary schools.

Education MV 290. Curriculum and Instructional Procedures and Materials Used in the Teaching of Vocal Music. (3) I. Mr. Faulkner

Prerequisite: Music 20A–20B, or equivalent.

Vocal materials, curriculum, and methods of teaching in both the elementary and secondary schools.

Education M 292A–B–C–D–E–F. Student Teaching: Music. (3–3–3–3–3–3) I, II, III. Mr. Faulkner

Prerequisite: Ed. MI 290, MV 290. To give music major and minor experience for general secondary credential in teaching music (classes, conducting and lessons).

Education M 293A. Problem Seminar in the Teaching of Music. (1) I, II, III. Mr. Faulkner

Prerequisite: Concurrent enrollment in Ed. M. 292A–B–C–D–E–F. Studies of the problems arising in student teaching. For the major.

Education M 293B. Problem Seminar in the Teaching of Music. (1) I, II, III. Mr. Faulkner

Prerequisite: Concurrent enrollment in Ed. M. 292A–B–C–D–E–F. Studies of the problems arising in student teaching. For the minor.

***Education ME 293. Elementary Music Curriculum and Procedures.** (3) I, II, III. Miss Westra

Prerequisite: Music 20A–20B, or equivalent.

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* Not to be given, 1971–72.

NATURAL SCIENCE

Curtis B. Anderson, Ph.D., *Associate Professor of Chemistry.*
Clifford A. Bunton, Ph.D., *Professor of Chemistry.*
Virgil B. Elings, Ph.D., *Assistant Professor of Physics.*
Henry A. Harbury, Ph.D., *Professor of Biochemistry.*
Vincent Jaccarino, Ph.D., *Professor of Physics.*
Philip C. Laris, Ph.D., *Associate Professor of Biology.*

A unified survey of important concepts in the natural sciences and their technological and social implications, sponsored jointly by the Department of Physics (1A), Chemistry (1B) and Biological Sciences (1C). Course 1A is prerequisite to 1B; course 1B is prerequisite to course 1C.

Not open to students who have completed a college level course in the Biological or Physical Sciences. Exceptions can be made with consent of the instructor and approval of the Dean.

General Education credit for this course sequence will be granted only if the entire series is passed. Upon completion of the three, General Education requirements 5a, 5b, and 5c will be satisfied.

1A–B–C. Contemporary Natural Science.
(4–4–4) I(A), II(B), III(C).
Mr. Elings, Mr. Anderson, Mr. Laris
1A—Lecture, four hours.
1B—Lecture, three hours; laboratory, two hours.
1C—Lecture, four hours.

PHILOSOPHY

[2,3]Herbert Fingarette, Ph.D., *Professor of Philosophy.*
Noel Fleming, D.Phil. (Oxon), *Professor of Philosophy.*
Harry K. Girvetz, Ph.D., *Professor of Philosophy.*
[3]Alexander Sesonske, Ph.D., *Professor of Philosophy (Chairman of the Department)*
Paul D. Wienpahl, Ph.D., *Professor of Philosophy.*
Burleigh T. Wilkins, Ph.D., *Professor of Philosophy.*
Richard G. Schmitt, Ph.D., *Visiting Professor of Philosophy.*
[2]Hubert R. G. Schwyzer, Ph.D., *Associate Professor of Philosophy (Graduate Advisor).*
[4]Charlotte Stough, Ph.D., *Associate Professor of Philosophy.*
Ronald B. de Sousa, Ph.D., *Visiting Associate Professor of Philosophy.*
Francis W. Dauer, Ph.D., *Assistant Professor of Philosophy.*
[1]J. William Forgie, Ph.D., *Assistant Professor of Philosophy (Graduate Advisor).*
Laurence D. Houlgate, Ph.D., *Assistant Professor of Philosophy.*
Nandini Iyer, M.A., (Oxon.), *Assistant Professor of Philosophy.*
William Macomber, Ph.D., *Assistant Professor of Philosophy.*
Joseph M. Ransdell, Ph.D., *Assistant Professor of Philosophy (Undergraduate Advisor).*
[4]Lloyd R. Reinhardt, B.A., *Assistant Professor of Philosophy.*
Merrill L. Ring, Ph.D., *Assistant Professor of Philosophy.*
Stuart C. Brown, Ph.D., *Visiting Lecturer in Philosophy.*

Offerings in philosophy are not only intended to provide undergraduate preparation for graduate study in philosophy; they are designed to contribute to general education and to preprofessional training in areas (e.g., law) where early specialization is normally discouraged. In numerous instances courses are directly related to specific disciplines or groups of disciplines for which they are intended to supply a philosophical framework (e.g., "Aesthetics" for the arts, "Philosophy of Science" for the natural sciences, etc.). The staff should be consulted for the courses best adapted to these several purposes.

In addition to the major in philosophy, a minor is available which can be adapted to the needs of students in such areas as natural science, social science, literature, art, and language.

PHILOSOPHY MAJORS

The major in philosophy is of two kinds: (I) that designed to prepare the student for graduate study in philosophy, and (II) that for the student who is intending to go on to graduate work in another field, for example, law, or the student whose interests are limited to a liberal education leading to the Bachelor of Arts degree.

Major I

Preparation for the major: Philosophy 20A–B–C (must be taken in sequence); Philosophy 183 and 184 (may be applied toward upper division unit requirement). History 4A–B–C.

The major: 48 upper division units in Philosophy including the following specified courses.

Group A: Two quarters of Philosophy 135 (170 may be substituted for one quarter), and 111 or 181 (only one quarter required).

Group B: At least three courses from the following: Philosophy 151, 160, 161, 162, 163, 164, 165.

Group C: one two-quarter sequence from the following: Philosophy 152A–B, 153A–B, 166A–B.

The remaining courses to be chosen according to the student's interests.

Major II

Preparation for the major: Philosophy 20A–B–C (must be taken in sequence); Philosophy 3 or 183; History 4A–B–C.

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[1] Absent on leave, fall 1971.
[2] Absent on leave, winter 1972.
[3] Absent on leave, spring 1972.
[4] Absent on leave, 1971–72.

The major: 36 units in upper division Philosophy which must include at least one course from Groups A and B, and one two-quarter sequence from Group C (above). (Philosophy 183, if taken in preparation for the major, may be counted in these 36 units.)

Combination Major

Students interested in a combination major with emphasis on social science see page 320.

The Minor

Required—Philosophy 20A–B–C and 24 units in upper division Philosophy courses which may be selected on the basis of their relevance to the student's major.

GRADUATE DEGREES IN PHILOSOPHY (PH.D., M.A., C.PHIL.)

The graduate program in Philosophy is a Ph.D. program. Only in special circumstances will the Department accept students whose aim is limited to earning the M.A. degree. However, provision is made within the Ph.D. program for awarding the M.A. degree when the student has demonstrated the requisite level of competence.

1. See *Graduate Division Announcement* for admission to graduate status.
2. In special circumstances a student who is substantially short of an undergraduate major in Philosophy may be provisionally admitted to the program to make up deficiencies. There is no guarantee that upon completion of the required courses such a student will be promoted to regular standing in the program.

The Degree of Doctor of Philosophy

1. *Preliminary Requirements:* All incoming graduate students are required, except under special circumstances, to complete successfully the Introductory Graduate Seminar (Philosophy 200) as a prerequisite to continuation in graduate status. Though this seminar is offered only in the Fall Quarter of each year, provision may be made for admission to the program in other quarters.
2. There is no foreign language requirement.
3. *Logic Requirements:* The student must show proficiency in logic either by passing Philosophy 183 and 184, or by having passed their equivalent elsewhere, or by examination.
4. *Course Requirements:* Upon satisfactory completion of the Introductory Graduate Seminar the student will be required to complete a MINIMUM of 12 courses, not including Philosophy 183, 184 and the Introductory Graduate Seminar. (For students who have done graduate work elsewhere adjustments may be made.) At least 8 of the 12 courses must be graduate seminars.
5. *Advancement to Candidacy:* There are two stages of being advanced to candidacy.
   A. The student shall write during the period of one quarter a substantial paper on a topic to be determined jointly by the student and a three-member committee of the faculty. In evaluating this paper the committee will seek evidence of depth and ability requisite to the writing of a doctoral dissertation. This Qualifying Paper must be accepted before advancement to the Oral Examination.
   B. The student will be required to pass an Oral Examination. Upon successful completion of this examination he will be awarded the M.A. degree and advanced to candidacy for the Ph.D. degree (C.Phil.).
6. Satisfactory completion of a dissertation and an oral defense thereof conclude the requirements for the Ph.D. degree.

Requirements for Graduate Study not Leading to a Degree

Students are permitted to do advanced studies in philosophy without working for a higher degree. Such students need not have majored in philosophy, although they must have taken a number of courses in philosophy. Only such of the regulations as apply to admission and standards concern these students.

TEACHING CREDENTIALS

Either a major or a minor in Philosophy may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of Philosophy and in the Graduate School of Education.

PHILOSOPHY

A list of specific courses to be offered, with descriptions, will be available at the Department of Philosophy office at the time pre-enrollment counseling begins for each quarter.

Lower Division Courses

1. Short Introduction to Philosophy. (4) I, II, III. The Staff

Philosophical ideas in terms of which western civilization seeks to understand itself and the world of which it is a part.

Not open for credit to students who have completed Philosophy 5.

(Note: will satisfy the General Education requirement. An introductory philosophy course [1 or 5 or 20ABC] is prerequisite to ANY upper division course.)

3. Logic in Practice. (4) The Staff

Practical reasoning, argumentation, and the analysis of language as instruments of sound thinking in everyday life.

Open to all students.

(Note: Will NOT satisfy the General Education requirement.)

5. Ideas and Practice of Philosophy. (4) I, II, III. The Staff

An introduction to ways of thinking philosophically and to philosophical ideas. For the nonmajor who desires to emphasize reading in original texts and frequent oral and written discussion. Enrollment limited to 20.

Not open for credit to students who have completed Philosophy 1. Enrollment limited to lower division students only.

(Note: Will satisfy the General Education requirement. An introductory philosophy course [1 or 5 or 20ABC] is prerequisite to ANY upper division course.)

20A–B–C. History of Philosophy. (4–4–4) A–I; B–II; C–III. The Staff

Must be taken in sequence; exceptions allowed only with consent of the instructor.

20A—From Thales to Aristotle.
20B—Medievalists to Rationalists.
20C—Empiricists and Kant.

(Note: The *year sequence* will satisfy the General Education requirement. An introductory philosophy course [1 or 5 or 20ABC] is prerequisite to ANY upper division course.)

Upper Division Courses

Philosophy 1, 5, or 20A–B–C, or consent of the instructor is required for all upper division courses.

101. The Practice of Analytic Philosophy. (4)

Prerequisite: 1 course in philosophy.

A course devoted to the writing of philosophy, both critical and constructive, within the analytic tradition and on current problems. The nature of analytic philosophizing will be discussed.

104. Ethics. (4) The Staff

A history of ethical theory.

105. Contemporary Ethical Theory. (4) The Staff

108. Philosophy of the Social Sciences. (4) Mr. Wilkins, Mr. Girvetz

Prerequisite: Philosophy 183 and two upper division social science courses recommended.

Logical and methodological problems of the social sciences. Analysis of various claims that the social sciences have a necessarily unique methodological status amongst the sciences.

109. Philosophy of Liberalism. (4) Mr. Girvetz

An examination of the assumptions and implications of classical and contemporary liberalism.

111. Metaphysics. (4) Mr. Ring, Mr. Wienpahl, Mrs. Iyer

112. Philosophy of Religion. (4) Mr. Forgie

The existence and nature of God, human free will, problem of evil, idea of immortality, rivalry of living religions and philosophy of mysticism.

118. Philosophy in the Nineteenth Century. (4) Mr. Wilkins, Mr. Girvetz, Mr. Schmitt

German idealism, romanticism and the philosophical implications of 19th century scientific developments.

119. American Philosophy. (4) Mr. Ransdell

American philosophy since 1800; idealism, naive realism, critical realism, pragmatism.

120. Pragmatism. (4) Mr. Ransdell

121. Political Philosophy. (4) Mr. Girvetz, Mr. Wilkins

Prerequisite: Philosophy 1, or 20A–B–C, or upper division standing in Political Science, or permission of the instructor.

Analysis of fundamental political conceptions; the state, sovereignty, political obligation, natural rights, natural law, etc.

122. Philosophies of India (4) The Staff
Prerequisite: Philosophy 20A or permission of instructor.

123. Classical Chinese Philosophy. (4)
Mr. Fingarette, Mr. Wienpahl
Prerequisite: Six units of philosophy or East Asian Studies, or consent of the instructor.

A study of selected classic texts of the period of the "philosophers" (approximately 500 to 200 B.C.). Primary emphasis on the *Analects* and the *Tao Te Ching*. (See detailed description of course available at Philosophy Department office.)

124. Philosophy of Science. (4) Mr. Wilkins
Prerequisite: Philosophy 183 and two upper division science courses recommended.

Analysis of the interrelated functions of scientific theories, models, laws, experiments, and observational procedures in relation to the goals of explanation, prediction, control, and understanding. Problems of induction and the logic of confirmation.

127. Philosophy of History. (4) Mr. Wilkins

132A–B. Existentialism. (4–4) Mr. Macomber
Prerequisite: 132A is prerequisite to 132B.

133. Philosophy of Language. (4)
Mr. de Sousa, Mr. Schwyzer
Modern linguistics. The structure and function of the languages of mathematics, the sciences, history, aesthetics, ethics, etc. General theories of symbolism, Logical Positivism and Semantics. Form and content in language systems. General system theory. Theory of communication. Possibilities of synthesis.

134. Philosophical Logic. (4) Mrs. Iyer
Prerequisite: Philosophy 20C or consent of the instructor.

A philosophical analysis of some of the basic terms and concepts in logic such as 'proposition,' 'true,' 'implication,' 'analytic/synthetic,' 'meaning,' 'self-contradiction,' 'category-mistake,' 'universal,' 'proper name'; and with problems such as the relation between logical connectives and ordinary language. This course will deal with contemporary discussions and controversies in philosophical logic.

135. Contemporary Philosophy.
(4) The Staff
Prerequisite: Philosophy 20C or consent of the instructor.

Positivism, pragmatism, existentialism, analytic philosophy, and other tendencies in contemporary thought.

May be repeated up to 12 units.

136. Aesthetics. (4)
Mr. Fleming, Mr. Sesonske
Analysis of the aesthetic experience, the aesthetic object, the creative act and art criticism.

137. Aesthetic Theory. (4)
Mr. Schwyzer, Mr. Sesonske
A study of some major works in the philosophy of art from Plato to the present, with emphasis on the development and analysis of the basic concepts employed in criticism of the arts.

146. Philosophy in Literature. (4)
Mr. Fingarette, Mr. Fleming
Study of philosophical ideas expressed in the literature of the Western world.

151. Pre-Socratics. (4) Miss Stough

152A–B. Plato. (4–4)
Miss Stough, Mr. de Sousa
Prerequisite: Philosophy 20A, or consent of the instructor. Must be taken in sequence. Cannot be used to satisfy a philosophy requirement unless both quarters are taken.

153A–B. Aristotle. (4–4) Miss Stough
Prerequisite: Philosophy 20A–20B, or consent of the instructor. Must be taken in sequence. Cannot be used to satisfy a philosophy requirement unless both quarters are taken.

154A–B–C. Plato and the Western Tradition.
(6–6–6) A I, B II, C III. Mr. Macomber
Prerequisite: Philosophy 20A–B–C recommended. Admission by interview with instructor only.

An examination of Plato's *Symposium* as an interpretation of the subsequent direction of the western tradition, projective philosophy of history: romanticism, rationalism, science and technology, radical criticism (existentialism), aestheticism, the Socratic ascent beyond nihilism and despair.

157. Medieval Philosophy. (4) The Staff
Prerequisite: Philosophy 152A–B and 153A–B, or consent of the instructor.

160. Descartes. (4) Mr. Ring, Mr. Wienpahl
Prerequisite: Philosophy 20B–C, or consent of instructor.

161. Spinoza. (4) Mrs. Iyer, Mr. Wienpahl
Prerequisite: Philosophy 20B–C, or consent of instructor.

162. Leibniz. (4) Mrs. Iyer, Mr. Wienpahl
Prerequisite: Philosophy 20B–C, or consent of instructor.

163. Locke. (4)
Mr. Fleming, Mr. Ransdell, Mr. Ring
Prerequisite: Philosophy 20B–C, or consent of instructor.

164. Berkeley. (4)
Mr. Fleming, Mr. Ransdell, Mr. Ring
Prerequisite: Philosophy 20B–C, or consent of instructor.

165. Hume. (4)
Mr. Fleming, Mr. Ransdell, Mr. Ring
Prerequisite: Philosophy 20B–C, or consent of instructor.

166A–B. Kant. (4–4)
Mr. Ransdell, Mr. Schwyzer
Prerequisite: Two courses from the sequence from 160 through 165, or consent of the instructor.

Must be taken in sequence. Cannot be used to satisfy a philosophy requirement unless both quarters are taken.

An examination of the philosophy of Kant with special attention to the *Critique of Pure Reason*.

167A–B. Hegel. (4)
Mr. Schmitt, Mr. Macomber

168A–B. German Philosophy Since Kant. (4–4) Mr. Schmitt, Mr. Macomber
Prerequisite: Philosophy 20B–C, or consent of the instructor.

169. Phenomenology. (4) Mr. Schmitt
An examination of the philosophies of Husserl and his disciples.

170. Wittgenstein. (4)
Mr. Schwyzer, Mr. Forgie
Prerequisite: Philosophy 20A–B–C or consent of the instructor.

180A–B. Philosophical Psychology. (4–4)
Mr. Fingarette, Mr. Fleming, Mr. Reinhardt
Prerequisite: consent of the instructor.

An examination of some of the concepts of the mind, such as those of desire, intention, action, perception, sensation, and the unconscious.

181A–B. Theory of Knowledge. (4–4)
Mr. Ring, Mr. Reinhardt

182. Concepts of Psychoanalysis. (4)
Mr. Fingarette
Prerequisite: consent of the instructor.

Lectures, reading, and case study critiques from Freud and contemporary psychoanalysis; an introduction to the principal conceptions for the student of philosophy and of the arts and humanities in general.

183. Beginning Modern Logic. (4) Mr. Dauer
Open to lower division students with the consent of the instructor.

An introduction to the concepts and methods of modern symbolic logic. Emphasis is placed on problems of translating English expressions into logical svmbols and on the development of skills in using the formal proof procedures of sentential and predicate logic.

184. Intermediate Modern Logic. (4)
Mr. Dauer
Prerequisite: Philosophy 183 or equivalent, or consent of the instructor.

Further application and development of the predicate calculus, including the calculi of identity and description. An introduction to the metalogical questions of completeness, consistency, and decidability.

185. Advanced Modern Logic. (4) Mr. Dauer
Prerequisite: Philosophy 184 or equivalent, or consent of the instructor.

Topics from the theory of formal systems, set theory, recursive function theory, and automata theory.

187. Philosophy of Mathematics. (4)
Prerequisite: Philosophy 183 (or equivalent); or consent of instructor.

Logistic, formalist, and intuitionist views of the nature of mathematics. Epistemological problems of applied mathematics.

188. Theory of Value. (4) Mr. Wilkins

192. Philosophy of Law. (4) Mr. Houlgate
Prerequisite: Philosophy 104 or consent of the instructor.

An introduction to some of the main issues generated by the philosophical question "What is law?" 1. In what sense is conduct made obligatory by the existence of law? 2. What, if any, is the relationship between law and morals? 3. What are rules? What does it mean to say that a rule exists? Do courts really apply rules or merely pretend to do so?

193. Punishment and Responsibility. (4)
Mr. Houlgate
Prerequisite: Philosophy 1 or 5 or 20A–B–C or consent of the instructor.

An examination of some of the philosophical problems relevant to the practice of punishment and determinations of responsibility: the rationale of the practice of punishment and the legal doctrine of *mens rea;* the analysis of specific conditions of responsibility ('acts of will', intention, and negligence); the claim that the criminal law could and should dispense with mental conditions of responsibility; the distinctions and relations between the meanings of 'punishment', 'responsibility', 'retribution', 'guilt', 'shame', etc.

194. Group Studies in Philosophy. (4)
The Staff
Course may be repeated for credit up to 8 units.

196. Senior Honors Seminar. (4) I. The Staff
Enrollment limited to senior Philosophy majors; by consent of instructor.

A discussion course centered around a single topic or problem to be announced in advance by the instructor.

197. Senior Honors Thesis. (2–2) II, III.
The Staff
Enrollment limited to senior Philosophy majors; by consent of instructor.

A research and writing tutorial designed for senior honors majors. The first term will be spent mainly in selecting and researching a topic for the thesis. The second term will be spent mainly in the writing of the thesis.

198. Readings in Philosophy. (1–4) I, II, III.
Admission by special arrangement. The Staff
Individual readings of the works of specific philosophers. This course may be taken for no more than three quarters and for a maximum of 4 units each quarter.

199. Independent Studies in Philosophy. (1–5) I, II, III. The Staff
Admission by special arrangement. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200. Introductory Graduate Seminar. (6) I.
Prerequisite: graduate standing. The Staff
Required of, and open only to, beginning graduate students as an introduction to graduate study in this Department. The content varies from year to year but shall always be a major topic or figure. Extensive writing will be required.

251A–B–C. Seminar in Metaphysics. (3–3–3) The Staff

Prerequisite: Consent of the instructor. Each course may be repeated up to 9 units. See Department for specific time of offering.

252A–B. Seminar in Aesthetics. (3–3) Mr. Sesonske

Prerequisite: Consent of the instructor. Each course may be repeated up to 9 units. See Department for specific time of offering.

253A–B–C. Seminar in the Philosophy of Language. (3–3–3) The Staff

Prerequisite: Consent of the instructor. Each course may be repeated up to 9 units. See Department for specific time of offering.

254A–B–C. Seminar in Ethics. (3–3–3) The Staff

Prerequisite: Consent of the instructor. Each course may be repeated up to 9 units. See Department for specific time of offering.

255. Seminar in the Philosophy of the Social Sciences. (3) Mr. Girvetz

Prerequisite: Consent of the instructor.

256A–B–C. Seminar in Epistemology (3–3–3) The Staff

Prerequisite: Consent of the instructor. Each course may be repeated up to 9 units. See Department for specific time of offering.

257. Seminar in the Philosophy of History (3) Mr. Wilkins

Prerequisite: Consent of the instructor. See Department for specific time of offering.

260. Problems in Legal and Political Philosophy. (3) Mr. Wilkins, Mr. Houlgate

Prerequisite: Consent of the instructor. See Department for specific time of offering.

262A–B–C. Seminar in the Philosophy of Mind. (3–3–3) The Staff

Prerequisite: Consent of the instructor. Each course may be repeated up to 9 units. See Department for specific time of offering.

264A–B. Seminar in the Philosophy of Science. (3–3)

Prerequisite: Consent of the instructor. See Department for specific time of offering.

270A–B–C–D–E–F. Seminar in the History of Philosophy. (3–3–3–3–3–3) The Staff

Prerequisite: Consent of the instructor. See Department for specific time of offering.

280A–B–C. Seminar—Contemporary Figures in Philosophy. (3–3–3) The Staff

Prerequisite: Consent of the instructor. See Department for specific time of offering.

284A–B. Seminar in the Philosophy of Mathematics. (3–3) Mr. Dauer

Prerequisite: Consent of the instructor. See Department for specific time of offering.

286A–B. Seminar in the Philosophy of Logic. (3–3) Mr. Dauer

Prerequisite: Consent of the instructor. See Department for specific time of offering.

594. Special Topics. (1–4) I, II, III. The Staff

Prerequisite: Graduate standing; consent of instructor.

Special seminar on research subjects of current interest.

596. Directed Reading and Research. (1–4) I, II, III. The Staff

Prerequisites: Graduate standing; consent of instructor.

Written proposal must be approved by Department Chairman.

597. Individual Study for Master's and/or Ph.D. Examinations for Advancement to Candidacy. (1–12) I, II, III. The Staff

598. Master's Thesis Research and Preparation. (1–12) I, II, III. The Staff

599. Ph.D. Dissertation Preparation. (1–12) I, II, III. The Staff

Prerequisite: Advancement to candidacy for the Ph.D. degree.

PHYSICAL ACTIVITIES

Ernest N. Carter, Ed.D., *Supervisor of Physical Activities, Emeritus.*
[1,2]Arthur J. Gallon, Ed.D., *Supervisor of Physical Activities.*
Willard M. Hammer, Ed.D., *Supervisor of Physical Activities.*
Mayville S. Kelliher, Ed.D., *Supervisor of Physical Activities (Chairman of the Department).*
Wilton M. Wilton, Ed.D., *Supervisor of Physical Activities.*
Arthur J. Aldritt, M.A., *Associate Supervisor of Physical Activities.*
William F. Rowland, M.S., *Associate Supervisor of Physical Activities.*
F. Patricia Stock, M.S., *Associate Supervisor of Physical Activities.*
Zoltan von Somogyi, *Master Coach Soccer and Fencing, Royal Academy of Physical Education, Budapest, Hungary. Associate Supervisor of Physical Activities.*
Judy V. Bass, M.Ed., *Assistant Supervisor of Physical Activities.*
Newell D. Breyfogle, M.A., *Assistant Supervisor of Physical Activities.*
Adrian O. Buoncristiani, M.A., *Assistant Supervisor of Physical Activities.*
Sherman G. Button, M.A., *Assistant Supervisor of Physical Activities.*
Sharon L. Evans, M.A., *Assistant Supervisor of Physical Activities.*
A. William Fleming, M.Ed., *Assistant Supervisor of Physical Activities.*
Lawrence J. Lopez, B.A., *Assistant Supervisor of Physical Activities.*
Nancy A. Norman, M.A., *Assistant Supervisor of Physical Activities.*
Emerson W. Smith, B.A., *Assistant Supervisor of Physical Activities.*
Rudolph Suwara, M.S., *Assistant Supervisor of Physical Activities.*
Dick F. Baldizan, B.S., *Assistant Supervisor of Physical Activities.*
Patricia P. Boyd, M.A., *Assistant Supervisor of Physical Activities.*
Paul T. Gray, Jr., B.S., *Junior Supervisor of Physical Activities.*
Bobbi L. Houghton, M.S., *Junior Supervisor of Physical Activities.*
William E. Jones, B.S., *Junior Supervisor in Physical Activities.*
Sandra Lucas, M.A., *Junior Supervisor of Physical Activities.*
Guerrino Moro, M.S., *Junior Superivsor in Physical Activities.*
Nancy L. Pothier, M.A., *Junior Supervisor in Physical Activities.*
Eileen M. Schillo, M.Ed., *Junior Supervisor in Physical Activities.*
Ronald E. Smeltzer, M.S., *Junior Supervisor in Physical Activities.*

◆

Samuel Adams, M.A., *Lecturer in Physical Activities.*
Ralph R. Barkey, M.A., *Lecturer in Physical Activities.*
Ronald G. Cote, M.A., *Lecturer in Physical Activities.*
Jack C. Curtice, M.A., *Lecturer in Physical Activities (Intercollegiate Athletics Director).*
Edward R. Doty, M.A., *Lecturer in Physical Activities.*
Andrew S. Everest, M.A., *Lecturer (Asst. Intercollegiate Athletics Director).*
David F. Gorrie, M.S. *Lecturer in Physical Activities.*

The Department of Physical Activities offers to the general student body courses designed to contribute to the development and maintenance of physical fitness, recreational skills for use in leisure time, professional courses involving activity leading to a teaching credential for Physical Education majors and minors, Athletic Minor, intramurals for both men and women, and intercollegiate athletic competition.

Courses may be taken only once for credit.

No more than 6 units of Physical Activities 1—courses may be counted toward degree requirements.

A physical examination performed by your private physician will be reviewed by the Student Health Service. Upon recommendation by the Health Service, a student who is unable to enroll in Physical Activity courses may enroll in special individual adaptation classes.

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[1] Absent on leave, fall 1971.
[2] Absent on leave, winter 1972

Fines

Fines are imposed for each formal transaction necessitated by failure of the student to comply with the regulations of the department: (a.) failure to return equipment, or clothing, on or before the date posted for such return at the end of each quarter (replacement cost for each item); (b.) failure to close out lockers at the end of each quarter ($5.00).

Athletic Coaching Minor

The Department of Physical Activities offers a minor in Athletic Coaching consisting of thirty (30) units. It is primarily designed for those individuals who are interested in coaching at the secondary, or junior college level. Eighteen (18) of these units are required as a basic core. *The remainder may be elected from selected Physical Activity courses. Students wishing this minor are requested to consult with the department counsellor prior to enrolling in classes.*

For information regarding the elementary, secondary, and junior college teaching credentials consult the Graduate School of Education.

Preparation for the minor: Recommended courses are Psychology 101, Speech 101.

Required core courses: P.A. 130A–B–C, P.A. 150, P.A. 164, P.A. 170 series (2 courses), and P.A. 184 series (2 courses).

Elective courses: Consult with department counsellor.

Physical Activities for Men and Women

Lower Division Courses

Fundamental Sports Activities.

The physical activities listed below are designed to provide a basic program by which students may improve their physical condition, secure useful neuromuscular development, and gain recreational skills. Any course listed may be elected for credit by juniors and seniors. The letter A indicates elementary level; B, intermediate level; and C, advanced level. Permission to take the intermediate and advanced courses without having previously completed the elementary course must be received from the Department of Physical Activities. Classes meet two periods weekly and provide instruction and supervised practice in the fundamentals of each activity. A course may be taken only once for credit.

/1–2A–B–C–D. Intercollegiate Baseball. (½) III.

1–3A–B–C. Archery. (½) I, II, III.

1–4A–B–C. Badminton. (½) I, II, III.

/1–5A–B–C. Baseball. (½) I, II, III.

1–6A–B–C. Basketball. (½) I, II, III.

$1–7A–B–C. Boating and Sailing. (½) I, II, III.

–1–8A–B–C. Body Mechanics. (½) I, II, III.

$1–9A–B–C. Bowling. (½) I, II, III.

/1–10A–B–C. Boxing. (½) I, II, III.

1–11A–B–C–D. Intercollegiate Basketball. (½) II.

1–12A–B–C. Judo. (½) I, II, III.

A course designed to provide students with the opportunity to improve their basic physical condition, secure useful neuromuscular development, and obtain combative defensive ability.

/1–13A–B–C. Saber Fencing. (½) Yr.

/1–14A–B–C–D. Intercollegiate Cross Country. (½) I.

1–15A–B–C–D. Modern Dance. (½) I, II, III.

1–16A–B–C. Folk Dance. (½) I, II, III.

1–17A–B–C. Social Dance. (½) I, II, III.

1–18A–B–C. Foil Fencing. (½) I, II, III.

1–20. Field Hockey. (½) III.

/1–21A–B–C–D. Intercollegiate Football. (½) I, III.

/1–22A–B–C–D. Intercollegiate Golf. (½) III.

/1–23A–B–C–D. Intercollegiate Gymnastics. (½) II.

1–24A. Golf. (½) I, II, III.

$1–24B–C. Golf. (½) I, II, III.

1–25A–B–C. Tumbling and Free Exercise. I, II, III.

Affords a basic background for the sport of Gymnastics with a working knowledge of tumbling skills progressing from basic mat somersaults, kips, balances, etc., to intermediate and advanced routines as used in both the men's and women's competitive tumbling and free exercise events.

/ Course open to men only.

$ A fee is charged for use of equipment and facilities not owned by the University. Direct payment will be made by the student.

– Course open to women only.

1–26A–B–C. Gymnastics Apparatus. (½) I, II, III.

Offers basic, intermediate and advanced instruction for both men and women in all Olympic Events except for Exercise. Step by step progressions leading to competitive style routines are taught for each of the three ability levels.

1–27A–B–C. Trampoline. (½) I, II, III.

This specialized course offers:

a. Basic (bounces, landings, positions somersaults),
b. Intermediate (consecutive somersaults, twists, routines), and
c. Advanced (multiple somersaults and twists, diphisis, and routines). Gymnastic skills pertaining only to the trampoline event. No previous experience necessary for "A" sections.

–1–29A–B–C. Exercise and Figure Control. (½) I, II, III.

/1–30A–B–C. Soccer. (½) I, II, III.

1–31A–B–C. Softball. (½) I, II, III.

1–33A–B–C–D. Intercollegiate Swimming. (½) III.

1–34A–B–C. Swimming. (½) I, II, III.

–1–35A–B–C. Synchronized Swimming. (½) I, II, III.

1–37A–B–C–D. Intercollegiate Tennis. (½) III.

1–38A–B–C. Tennis. (½) I, II, III.

1–39A. Elementary Track and Field. (½) I, II, III.

1–40A–B–C. Volleyball. (½) I, II, III.

/1–41A–B–C. Water Polo. (½) I, II, III.

/1–42A–B–C–D. Intercollegiate Track and Field. (½) III.

/1–43A–B–C–D. M Weight Training. (½) I, II, III.

/1–44A–B–C. Wrestling. (½) I, II, III.

/1–45A–B–C–D. Intercollegiate Water Polo. (½) I.

/1–46A–B–C–D. Intercollegiate Wrestling. (½) II.

/1–47A–B–C–D. Intercollegiate Volleyball. (½) III.

/1–48A–B–C–D. Intercollegiate Soccer. (½) I.

All 1–50 series, these courses open to P.E. majors and minors as indicated. A basic difference between these and the other activity courses will be noted in the amount of skill expected of the student and the information provided in a limited time.

1–50A. Swimming (Co-ed). (½) III.

1–50B. Basketball (M/W). (½) II.

1–50C. Track & Field (Co-ed). (½) I.

1–50D. Field Sports (W). (½) I.

1–50E. Folk Dance (Co-ed). (½) II.

1–50F. Tumbling & Free Exercise (Co-ed). (½) I.

1–50G. Gymnastic Apparatus (M/W). (½) II.

1–50H. Trampoline (Co-ed). (½) III.

1–50I. Tennis (Co-ed). (½) I.

1–50J. Body Mechanics (W). (½) II.

1–50K. Volleyball (Co-ed). (½) III.

1–50L. Modern Dance (Co-ed). (½) II.

1–50M. Field Hockey (co-ed). (½) I, II, III.

–4A–B–C. Life Fitness for Women. (1.5) I, II, III. The Staff

A course designed for women directed toward attaining physical fitness through an understanding and participation in an effective program of physical activities which can be continued throughout life. Stress will be placed on activities that contribute toward total health.

5A. Survival and First Aid. (1) I, II, III. The Staff

A course designed to provide the knowledge and ability to give immediate and temporary care to victims of an accident, or sudden illness, until the services of a physician can be obtained.

Successful completion of the course may lead to the Standard Red Cross Certificate.

5B. Survival and Advanced First Aid. (1) I, II, III. The Staff

Prerequisite: P.A. 5A, or Red Cross Standard First Aid Certificate.

This course covers the competent handling of the more difficult emergencies and problems in first aid. Successful completion of this course may lead to the Red Cross Advanced Certificate which is a prerequisite to the Instructor's First Aid Certificate.

–6A–B. Personal Defense for Women. (1.5) I, II, III. Mrs. Stock

Course presents situations in which a college girl would need to apply self-defense techniques, emphasizes "rules of avoidance and safety." Basic skills needed for self-defense will be included in the course.

7A–B–C. Life Fitness for Men. (1.5) Year. Mr. Breyfogle

A course designed for men directed toward attain-

– Course open to women only.
/ Course open to men only.

ing a basic understanding of bodily functions as they relate to exercise and increasing physical fitness through controlled activities.

30A–B–C. Appreciation of Sports.
(2) I, II, III. Mr. Gallon

Lecture, demonstrations, and selected learning experiences for the general university student leading to an understanding and appreciation of athletics and recreational sports.

32A. Principles of Officiating. (1) I.
Mr. Kelliher

The principles, ethics and standards of officiating Fall team and individual sports. Open to both men and women.

/32B. Principles of Officiating. (1) II.
Mr. Kelliher

The principles, ethics and standards of officiating Winter team and individual sports. Open to men only.

–32C. Principles of Officiating. (1) II.
Mr. Kelliher

A course open to women only leading to the securing of official's cards in Volleyball and Basketball.

32D. Principles of Officiating. (1) III.
The Staff

Principles, ethics and standards of officiating Spring team and individual sports. Open to both men and women.

48. Lifesaving. (1) I, II, III. Mr. Rowland

One lecture and one pool period per week. May lead to American Red Cross senior lifesaving certificate.

49A. Elementary Water Safety. (1) I, II, III.
Mr. Rowland

Prerequisite: P.A. 48A, or current American Red Cross Senior Lifesaving Certificate.

The course provides an opportunity for individuals to analyze and perform all swimming skills related to personal safety, self-rescue techniques, and small craft safety factors. Satisfactory completion of the course is a prerequisite for P.A. 49B.

49B. Intermediate Water Safety. (1) I, II, III.
Prerequisite: P.A. 49A. Mr. Rowland

The course provides an opportunity for individuals to learn the theory and practice application of methods to organize and present aquatic materials. Satisfactory completion of the course may lead to the American Red Cross Water Safety Instructor's Certificate.

Upper Division Courses

101. Methods of Conditioning in Athletics.
(3) I, II, III. Mr. Button

Prerequisite: P.A. 1–43C, or permission of instructor.

A course designed to present current methods and concepts of athletic training and conditioning. Emphasis is placed on fitness training programs, conditioning and progressive weight training specific to sports. Basic concepts for guiding training, conditioning, diet and nutrition in athletics are examined.

130A–B. Foundations of Athletics— Problems Related to Athletics.
(2) I, II, III. Mr. Gallon

Prerequisite: By consent of instructor.

An introduction to basic problems concerned with the actual operation of athletics. Emphasis is placed on sociological factors and those problems peculiar to California Interscholastic Athletic Programs.

130C. Foundation of Athletics— Problems Related to Sports Psychology.
(2) I, II, III. Mr. Hammer

Prerequisite: P.A. 130B, or by permission of the instructor.

The application of data from psychological and related fields as it specifically applies to athletics, coaches, and sports activities. Principles and problems of coaching are examined. Human factors of performance, personality, motivation, learning and stress are presented.

130D. Foundation of Athletics—Problems Related to Sports and Society. III.
The Staff

Prerequisite: Registered Coaching Minor, and consent of the instructor.

A course designed to explore the problems relative to sport and society as they affect interscholastic participation and coaching.

136. Fundamental Physical Activities in The Elementary School Program.
(3) I, II, III. Miss Bass

An analysis of the physical activities and progression in motor skills and activities for the elementary school program. This class satisfies a prerequisite for admission to Graduate School of Education.

150. Medical Aspects of Athletics.
(3) I, II, III. Mr. W. Wilton

Prerequisite: Advanced First Aid card, and consent of instructor.

An introduction to the basic concepts and techniques in the prevention, diagnosis, treatment, and rehabilitation of athletic injuries. The practical application for prevention and the therapeutic measures relative to sports activities, the design and function of protective equipment are examined.

151. Composite Sciences for Athletic Coaching. (3) I, II, III.
Mr. Kelliher, Mr. Wilton

An overview from the essential scientific disciplines, human anatomy, kinesiology, motor learning and nutrition as they apply to athletic coaching. The course is specifically designed for students lacking a scientific background related to human motion.

163A. Theory of Individual and Team Sports.
(3) I, II, III. Mrs. Stock

Prerequisite: P.A. 1–50A–B–C, or consent of instructor. In addition, P.E. Majors P.E. 101, 105; P.E. Minors P.E. 100A–B–C.

An analysis of performance and development of advanced skills in individual and team sports.

– Course open to women only.
/ Course open to men only.

163B. Theory of Individual and Team Sports. (3) I. Mrs. Stock
Prerequisite: P.A. 1–50D–E–F–G–H, 163A, or consent of instructor.

164. Practicum—Physical Activities. (3) I, II, III. Mrs. Stock, Mr. Wilton
Prerequisite: By consent of the instructor.
Actual experience in the conduct of activity classes, or athletic teams, under the supervision of an experienced instructor, or coach.

All 170 series (TECHNIQUES OF TEAM SPORTS) (1) analysis of performance for group and individual activities in the secondary school as it pertains to class management and advanced skills in advanced sports and team activity.
Prerequisite: Related Physical Activities course 1–, or proficiency in activity.

170A. Football. (1) I. Mr. Everest

170B. Basketball. (1) I. Mr. Barkey

170C. Baseball. (1) II. Mr. Gorrie

170D. Track & Field. (1) II. Mr. Adams

170E. Water Polo. (1) I. Mr. Rowland

170F. Diving & Swimming. (1) I. Mr. Rowland

170G. Soccer. (1) I. Mr. von Somogyi

170H. Gymnastics. (1) I. Mr. Aldritt

170I. Volleyball. (1) III. Mr. Fish

170J. Women's Field Sports. (1) III. Mrs. Stock

170K. Wrestling. (1) I. Mr. Hammer

170L. Racquets Sports. (1) III. Mr. Doty

170M. Golf. (1) II. Mr. Breyfogle

All 184 series (ADVANCED ANALYSIS OF TEAM SPORTS) (2) Advanced analysis of team sports in preparation for specialized instruction of competitive teams on the high school, or college level.

184A. Football. (2) I. Mr. Curtice
Prerequisite: 170A, or consent of instructor.

184B. Basketball. (2) II. Mr. Barkey
Prerequisite: 170B, or consent of instructor.

184C. Baseball. (2) III. Mr. Gorrie
Prerequisite: 170C, or consent of instructor.

184D. Track and Field. (2) III. Mr. Adams
Prerequisite: 170D, or consent of instructor.

184E. Water Polo. (2) I. Mr. Rowland
Prerequisite: 170E, 1–41A, or consent of instructor.

184F. Competitive Swimming and Diving. (2) II. Mr. Rowland
Prerequisite: P.A. 1–34B, 170F, or consent of instructor.

184G. Soccer. (2) II. Mr. von Somogyi
Prerequisite: P.A. 170G, or consent of instructor.

184H. Gymnastics. (2) II. Mr. Aldritt
Prerequisite: P.A. 170H, or consent of instructor.

192A–B–C–D. Student Teaching; Coaching. (3–3–3–3) Year. Mr. Wilton
Prerequisite: Minor in Physical Activities; related P.A.170, 184 series.
A course designed to satisfy the California General Secondary Teaching Credential. Available only to students accepted in the School of Education.

199. Independent Studies in Athletic Coaching. (1 to 5 units.) I, II, III. The Staff
Prerequisite: Senior standing and consent of the instructor.
Open only to advanced students approved by the Coaching Minor adviser and faculty members involved. 199 credits are limited to no more than 5 in one quarter, and no more than 10 units total.

PHYSICS

Paul H. Barrett, Ph.D., *Professor of Physics.*
Herbert P. Broida, Ph.D., *Professor of Physics.*
[4]David O. Caldwell, Ph.D., *Professor of Physics.*
Robert M. Eisberg, Ph.D., *Professor of Physics.*
Jose Fulco, Ph.D., *Professor of Physics.*
Vincent Jaccarino, Ph.D., *Professor of Physics (Chairman of the Department).*
Harold W. Lewis, Ph.D., *Professor of Physics.*
Raymond F. Sawyer, Ph.D., *Professor of Physics.*
Douglas J. Scalapino, Ph.D., *Professor of Physics.*
William C. Walker, Ph.D., *Professor of Physics.*
Murray Gell-Mann, Ph.D., *Adjunct Professor of Physics.*
Paul H. Lee, A.B., *Adjunct Professor of Physics.*
Leonard H. Hall, Ph.D., *Associate Professor of Physics.*
[1]James B. Hartle, Ph.D., *Associate Professor of Physics.*
Daniel W. Hone, Ph.D., *Associate Professor of Physics.*
Rollin J. Morrison, Ph.D., *Associate Professor of Physics.*
Stanton Peale, Ph.D., *Associate Professor of Physics.*
Glen E. Schrank, Ph.D., *Associate Professor of Physics.*
Robert L. Sugar, Ph.D., *Associate Professor of Physics.*
David S. Cannell, Ph.D., *Assistant Professor of Physics.*
Virgil B. Elings, Ph.D., *Assistant Professor of Physics.*
Allan S. Krass, Ph.D., *Assistant Professor of Physics.*
Bernard G. Silbernagel, Ph.D., *Assistant Professor of Physics.*

◆

The Department of Physics offers programs leading to either the B.A. or B.S. degree. The B.A. degree is primarily intended for students who anticipate an interdisciplinary career after graduation. The B.S. degree is primarily intended for students who anticipate continuing with graduate work in physics after receipt of the B.S. and involves a somewhat heavier concentration of physics courses, with a reduced General Education language requirement.

THE DEGREE OF BACHELOR OF ARTS

General Education

Students are expected to fulfill the General Education requirements of the College of Letters and Science for the B.A. degree.

Preparation for the Major

Physics majors are normally expected to complete the following courses in their first two years: Physics Y, 8A–B–C; Mathematics 3A–B–C, 4A–B; Chemistry 1A–B–C; Biology 1A; and four units of Geology or Oceanography. Although not required, Physics Y is strongly recommended.

The Major

A minimum of 46 units of upper division physics and mathematics is required as follows: Physics 101A–B–C, 116A–B–C, 127A–B–C, 128L, 129L, 130L, four units of either 119, 133 or 141; Mathematics 124A–B.

THE DEGREE OF BACHELOR OF SCIENCE

General Education

Students are expected to fulfill the General Education requirement of the College of Letters and Science. One year (or equivalent) of French, German, or Russian is required.

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[4] Absent on leave, 1971–72.
[1] Absent on leave, fall 1971.

Three years of one of these languages in high school, if validated by examination, will satisfy the requirement.

Preparation for the Major

Physics majors are normally expected to complete the following courses in their first two years: Physics Y, 1, 2, 2L, 3, 3L, 4, 4L, 5, 5L; Mathematics 3A–B–C, 4A–B; Chemistry 1A–B–C; Biology 1A or equivalent. Although not required Physics Y is strongly recommended.

Qualified sophomores or transfer students who have missed Physics 1 and 2 but who wish to major in physics may substitute Physics 7A–B–C or 8A–B–C for Physics 1, 2, 2L, 3, 3L, 4, 4L as a prerequisite for upper division courses, subject to the approval of their adviser and the departmental chairman. Students who exercise this option must take Physics 119.

The Major

A minimum of 49 units of upper division physics and mathematics are required as follows: Physics 105A–B, 110A–B–C, 115A–B–C, 128L, 129L, 130L, and three courses selected from among Physics 119, 123, 124, 126, 133, and 141; Mathematics 124A–B–C.

SUGGESTED COURSE SCHEDULE FOR FRESHMEN IN EITHER THE BACHELOR OF ARTS OR BACHELOR OF SCIENCE PROGRAM

Units	Course
2	Physics Y
4	Chem 1A
4	Math 3A
4	English 1A
½	Physical Activity

Requirements for the Minor

The Department of Physics offers a minor in physics consisting of a minimum of 30 units of basic physics, at least 12 of which are in upper divison courses. Six units of Mathematics may be substituted for the lower division requirement. Students wishing a minor in physics must consult the department chairman before enrolling as a minor.

GRADUATE PROGRAM IN PHYSICS

The Department offers work leading to the Ph.D. and M.A. degrees in physics. A candidate for admission to the Ph.D. and M.A. programs must present an undergraduate major in physics, or its equivalent, and his score on the Graduate Record Examination.

Entering students will be appraised by means of examination during registration week; where necessary, supplementary courses will be required. A candidate for admission to the scientific instrumentation program must present an undergraduate major in natural sciences, or engineering or its equivalent. A program in chemical physics is offered in conjunction with the Department of Chemistry and the College of Engineering.

Requirements, Master of Arts

1. Completion of 36 quarter units of course work, selected with the approval of the departmental graduate adviser. A minimum of 24 units must be in graduate courses (200 series) in physics; the remainder may be selected from upper division or graduate courses in mathematics, chemistry, or physics.

2. The student must demonstrate a satisfactory level of teaching proficiency in undergraduate physics courses. Normally three quarters are required to satisfy this requirement.

3. The student must demonstrate proficiency in Fortran or a comparable computer language.

4. Completion of Plan II: written comprehensive examination and final oral examination.

Requirements, Master of Arts in scientific instrumentation

1. Completion of 36 quarter units of course work, which must include Physics 240A–B–C, 246A–B–C, 247 and 6 units of related directed studies. The remainder may be selected from upper division or graduate courses in any approved department.

2. There is no language requirement for this degree.

3. Satisfactory completion of an oral examination covering the student's course work and project.

Requirements, Doctor of Philosophy

1. Satisfactory completion of a set of comprehensive graduate qualifying examinations covering the major fields of physics.

2. The student must demonstrate a satisfactory level of teaching proficiency in undergraduate physics courses, or other courses at the discretion of the chairman. Normally three quarters are required to satisfy this requirement.

3. The Educational Testing Service Language Examination in either German, French, or Russian must be passed at a satisfactory level. The student must demonstrate proficiency in Fortran or a comparable computer language.

4. Completion and oral defense of a doctoral dissertation.

TEACHING CREDENTIALS

Either a major or a minor in physics may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with the designated counselor in the Graduate School of Education.

ASTRONOMY

Lower Division Course

1. Basic Astronomy. (4) I, II, or III. Mr. Schrank**

The nature and structure of the solar system, our local galaxy, and the universe.

2. History of the Universe. (4) III. The Staff

Prerequisite: Astronomy 1.

The large scale structure of the universe, its origin, and evolution. The birth of the sun and the planets and their subsequent evolution. The conditions necessary for life elsewhere in the universe and the probabilities of its existence and detection.

NATURAL SCIENCE

Lower Division Course

1A–B–C. Contemporary Natural Science. (4–4–4) 1A(I), 1B(II), 1C(III). Mr. Elings

Prerequisite: 1A is prerequisite to 1B; 1B is prerequisite to 1C.

A unified survey of important concepts in the natural sciences and their technological and social implications, sponsored jointly by the Department of Physics, Chemistry and Biological Sciences.

Not open to students who have completed a college level course in the Biological or Physical Sciences. Exceptions can be made with consent of the instructor and approval of the Dean.

General Education credit for this course sequence normally will be granted only if the entire series is passed. Exceptions can be made with consent of the instructor and approval of the Dean. Upon completion of the three courses, General Education requirements 5a, 5b, and 5c will be satisfied.

PHYSICS

Lower Division Courses

Y. (2) I. Mr. Walker

A survey of physical phenomena and of the physical laws which govern them. Intended primarily as a qualitative overview of physical phenomena and current research before detailed considerations of Physics 1–5. Does not satisfy the general education requirement.

1. Physics. (4) II. Mr. Cannell

Prerequisite: Mathematics 3A.

Mechanics, Newton's laws, Galilean transformation; conservation of energy, linear and angular momentum; harmonic oscillator, central forces; introduction to special relativity.

2. Physics. (4) III Mr. Morrison

Prerequisite: Physics 1 and Mathematics 3B.

Lorentz transformation; electrostatics, electric and magnetic fields; Gauss', Ampere's and Faraday's laws; direct and alternating circuits; dielectric and magnetic properties of matter.

** The names accompanying the courses are the most recent instructors. For this year's teaching assignments, consult the Physics office.

2L. Introduction to Experimental Physics. (1) III. The Staff

Prerequisite: Physics 1. Physics 2 to be taken concurrently.

Experiments in electro-mechanical analogs, electron ballistics, use of CRO, sine-wave and square-wave generators.

3. Physics. (4) I. Mr. Barrett

Prerequisite: Physics 2 and Mathematics 3C.

Waves and oscillations: Maxwell's equations, electromagnetic waves, optics, sound, mechanical vibrations, interference, diffraction, polarization.

3L. Introduction to Experimental Physics. (1) I. The Staff

Prerequisite: Physics 2. Physics 3 to be taken concurrently.

Experiments in transistors, amplifiers, feedback, nonlinear phenomena; microwave, acoustical and optical phenomena.

4. Physics. (4) II. Mr. Barrett

Prerequisite: Physics 3 and Mathematics 4A.

Introduction to quantum physics; physics of atoms, molecules, and nuclei.

4L. Introduction to Experimental Physics. (1) II. The Staff

Prerequisite: Physics 3. Physics 4 to be taken concurrently.

Experiments in optics, photoelectric effect, spectroscopy, thermionic emission, excited states of atoms and nuclei.

5. Physics. (4) III. Mr. Barrett

Prerequisite: Physics 4 and Mathematics 4B.

Statistical physics, kinetic theory, thermodynamics.

5L. Introduction to Experimental Physics. (1) III. The Staff

Prerequisite: Physics 4. Physics 5 to be taken concurrently.

Experiments in thermal, quantum, and statistical phenomena.

6A–B–C. Physics for Biological Scientists. (3–3–3) Yr. Mr. Williamson

Prerequisite: Mathematics 32 or concurrent registration in Mathematics 3A–B–C.

Mechanics, electricity and magnetism, optics, thermodynamics; atoms, molecules, nuclei, and solids.

6AL–BL–CL. Experimental Physics for Biological Scientists. (1–1–1) Yr. The Staff

Prerequisite: Concurrent registration in 6A–B–C, or consent of the instructor.

Experiments in: the mechanical, electrical and thermal properties of matter, the behavior of light, and quantum phenomena with application to the biological sciences.

7A–B–C. Physics for Engineers. (4–3–3) Yr. Mr. Hall

Prerequisite: One year of college calculus and Mechanical Engineering 10.

Electromagnetic fields; waves, optics, acoustics, and relativity; quantum mechanics; atomic, solid state, and nuclear physics.

7BL–CL. Experimental Physics for Engineers. (1–1) II, III. The Staff

Prerequisite: Concurrent registration in 7B–C.

Experiments in: electric and magnetic deflection of electrons, use of the oscilloscope, electrical-mechanical analogs, microwaves, quantum effects, and radioactivity.

8A–B–C. Physics for Science Majors. (4–4–4) Yr. Mr. Broida

Prerequisite: Math 3A, and concurrent registration in Math 3B.

Classical mechanics; relativity theory, electricity and magnetism; quantum theory, atoms, statistical mechanics and thermodynamics; solids; nuclei and elementary particles.

8AL–BL–CL. Experimental Physics for Science Majors. (1–1–1) Yr. The Staff

Prerequisite: concurrent registration in 8A–B–C.

Experiments in: mechanical conservation laws, dynamics of moving bodies, use of the oscilloscope, deflection of electrons, electrical-mechanical analogs, microwave transmission and diffraction, quantum effects, and radioactivity.

10. Concepts of Physics. (4) II, or III. Mr. Silbernagel

A survey of the important concepts in physics for the non-science major.

31. Physical Aspects of Air Pollution. (3) I or II. The Staff

Prerequisite: One year of college chemistry and one year of college physics.

An interdisciplinary focus on the physical causes and effects of air pollution; human response, greenhouse effect, global and local meteorology, downwind dispersal of plumes, fossil fuels, sulfurous smog, photochemical smog, synergistic effects, aerosols, and concepts for emission controls.

Upper Division Courses

100. Science, the University and Society. (2) I. Mr. Krass

A collaboration by members of the various science departments. Lectures and panel discussions. 1) Examination of selected scientific problems of relevance to society. 2) Discussion of: (a) the organization and control of scientific research, (b) scientific advice to the government, (c) science in the university.

101A–B–C. Classical Physics. (4–4–4) Yr. Mr. Caldwell

Prerequisite: Physics 3, or 8C, Math 4B.

Classical mechanics: motion of rigid bodies and fluid mechanics. Electricity and magnetism, thermodynamics, electronics, wave motion, physical optics, special relativity.

105A–B. Classical Mechanics. (3–3) I, II. Mr. Peale

Prerequisite: Physics 4, Mathematics 124A or 119A (may be taken concurrently).

Dynamics of point particles, conservation laws, motion of rigid bodies, Lagrangian formulation of mechanics, small vibrations and normal modes.

110A–B–C. Electromagnetism. (3–3–3) Yr. Mr. Cannell

Prerequisite: Physics 3 or 7B, and Mathematics 4B.

Electrostatics, magnetostatics, electric and magnetic properties of materials, Maxwell's equations, electromagnetic waves, radiation from charged particles, special relativity.

115A–B–C. Quantum Mechanics. (3–3–3) III, I, II. Mr. Krass

Prerequisite: Physics 4, Mathematics 124B.

Introductory quantum mechanics: Schrödinger equation and applications; angular momentum and spin; quantum mechanical description of nuclei, atoms, and molecules. Emission and absorption of radiation, theory of atomic and molecular states, and selection rules. Quantum statistics and band theory of solids.

115AG–BG–CG. Quantum Mechanics. (3–3–3) III, I, II. The Staff

Introductory quantum mechanics: Schrödinger equation and applications; angular momentum and spin; quantum mechanical description of nuclei, atoms, and molecules. Emission and absorption of radiation, theory of atomic and molecular states, and selection rules. Quantum statistics and band theory of solids. Open only by consent of the Physics Graduate Adviser to graduate students who have not taken 115A–B–C, or the respective part thereof in this institution.

116A. Elementary Quantum Mechanics. (4) I. Mr. Morrison

Prerequisite: Physics 4, 7C, or 8C.

The basic principles of quantum mechanics, the Schrödinger equation, angular momentum and spin, exclusion principle, emission and absorption of radiation, scattering.

116B. Modern Applications of Quantum Mechanics. (4) II. Mr. Morrison

Prerequisite: Physics 116A or consent of instructor.

The application of quantum mechanics to the study of spectroscopy, solid state physics, solid state electronic devices, lasers and holography, nuclear magnetic resonance, superconductivity.

116C. Nuclei and Elementary Particles. (4) III. The Staff

Prerequisite: Physics 116A or consent of instructor.

Nuclear models, nuclear decay and nuclear reactions, elementary particles, the symmetries and conservation laws of physics.

117. Nuclear Physics for Engineers. (4) III. Mr. Eisberg

Prerequisite: Physics 116A or consent of instructor.

Nuclear models, fundamentals of nuclear fission, plasmas, electromagnetic containment of charged particles, nuclear fusion, nuclear radiation, radiation shielding, interaction of charged particles with matter, biological effects of radiation.

119. Statistical Mechanics and Thermodynamics. (4) II. Mr. Silbernagel

Prerequisite: Physics 4.

Kinetic theory of statistical ensembles. Boltzmann, Fermi-Dirac and Bose-Einstein distribution laws. Relation of thermodynamic variables and microscopic properties.

123. Solid State Physics. (3) II. Mr. Walker

Classification of solids, crystal symmetry, lattice dynamics; thermal, electric, and magnetic properties; band theory of electronic states, imperfections, superconductivity.

123G. Solid State Physics. (3) II. The Staff

Classification of solids, crystal symmetry, lattice dynamics; thermal, electric, and magnetic properties; band theory of electronic states, imperfections, superconductivity. Open only by consent of the Physics Graduate Advisor to graduate students who have not taken 123, or the respective part thereof in this institution.

124. Nuclear Physics. (3) III. Mr. Sugar

Prerequisite: Physics 115B.

Properties of stable nuclei. Nuclear models. Nuclear decay and nuclear reactions, including fusion and fission.

125. Elementary Particle Physics. (3) III. The Staff

Prerequisite: Physics 115B.

Phenomenology of the particles of high energy physics and their strong, electromagnetic, and weak interactions. Fundamental symmetries, invariance principles, and the associated quantum numbers.

126. Plasma Physics. (4) II. Mr. Peale

Introduction to the physics of the fully ionized gas. Motion of charged particles in electric and magnetic fields, magnetohydrodynamics, equilibrium plasma configurations and their stability, waves in plasmas. Examples selected from the space and astrophysical sciences and controlled fusion research.

126G. Plasma Physics. (4) II. The Staff

Introduction to the physics of the fully ionized gas. Motion of charged particles in electric and magnetic fields, magnetohydrodynamics, equilibrium plasma configurations and their stability, waves in plasmas. Examples selected from the space and astrophysical sciences and controlled fusion research. Open only by consent of the Physics Graduate Advisor to graduate students who have not taken 126, or the respective part thereof in this institution.

127A–B–C. Electronics for Science Majors. (2–2–2) Yr. Mr. Kendall

Prerequisite: 6 units of calculus and 6 units of physics.

Circuit theory, semiconductor device characteristics, feedback amplifiers, oscillators, analog computers, operational amplifiers, digital and logic circuits, integrated circuits, fast pulse technique.

128L–129L–130L. Advanced Experimental Physics. (2 to 4 per Quarter) Yr. Mr. Morrison

Prerequisite: Physics 5, and 110A–B–C. (May be taken concurrently.)

Selected experiments in contemporary physics, e.g., electron and nuclear resonance; radioactivity; gamma and beta ray spectroscopy; nuclear counting techniques; optical pumping; low temperature measurements, superconductivity.

133. Astrophysics. (4) II. Mr. Peale

Prerequisite: Physics 4 and 110A–B–C. (May be taken concurrently.)

Selected studies of the physical processes taking place in the solar system, the stars, the galaxies, and the universe.

133G. Astrophysics. (4) III. The Staff

Selected studies of the physical processes taking place in the solar system, the stars, the galaxies and the universe. Open only by consent of the Physics Graduate Advisor to graduate students who have not taken 133, or the respective part thereof in this institution.

141. Optics and Spectroscopy. (4) III.

Prerequisite: Physics 115C. Mr. Walker

Modern physical optics, optical properties of materials, statistical optics, coherence phenomena, atomic, molecular and solid state spectroscopy.

141G. Optics and Spectroscopy. (4) III.

Modern physical optics, optical properties of materials, statistical optics, coherence phenomena, atomic, molecular and solid state spectroscopy. Open only by consent of the Physics Graduate Advisor to graduate students who have not taken 141, or the respective part thereof in this institution.

142L. Experimental Research in Molecular and Solid State Physics.
(2) I, II, III. Mr. Broida

Prerequisite: Physics 5 or 7C and consent of the instructor.

This course offers qualified undergraduates the opportunity to work in research laboratories assisting the faculty and graduate students in experimental research in molecular and solid state physics. May be repeated for credit up to six units.

143L. Experimental Research in Nuclear and Elementary Particle Physics.
(2) I, II, III. Mr. Elings

Prerequisite: Physics 5 or 7C and consent of the instructor.

This course offers qualified undergraduates the opportunity to work in research laboratories assisting the faculty and graduate students in experimental research in nuclear and elementary-particle physics. May be repeated for credit up to six units.

198AA–198ZZ. Directed Reading.
(1–4) I, II, III. The Staff

Prerequisite: consent of the instructor.

Each staff member has his own directed reading course identified by the same letter code as the 599 series.

199AA–199ZZ. Independent Studies in Physics. (1–5) I, II, III. The Staff

Prerequisite: consent of the instructor.

Directed individual study open to qualified seniors in the Department of Physics. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total. Each staff member has his own independent studies course identified by the same letter code as the 599 series.

Graduate Courses

200A–B–C. Mathematical Methods of Physics. (3–3–3) Yr. Mr. Fulco

Mathematical techniques useful in physics, including the theory of functions of a complex variable, linear vector spaces, Fourier transforms, tensor analysis, elementary group theory, partial differential equations of physics, boundary value problems and integral equations.

205. Classical Mechanics. (3) I. Mr. Sawyer

Derivation of the equations of Lagrange, Hamilton, and Hamilton-Jacobi by variational principles. Application of these equations to problems involving two bodies, rigid bodies, small oscillations, and continuous systems.

206. Mechanics of Continuous Media. (3)

Prerequisite: Physics 205. The Staff

Dynamics of incompressible and compressible fluids. Supersonic and hypersonic flow, shockwaves. Viscosity. Elasticity.

210A–B–C. Electromagnetic Theory. (3–3–3) II, III, I. Mr. Lewis

Prerequisite: Physics 205.

Electrostatics, magnetostatics, boundary value problems, time varying fields, Maxwell's equations, multipole fields, relativistic particle dynamics, scattering, radiation.

215A–B–C–D. Quantum Mechanics.
(3–3–3–3) I, II, III. Mr. Hone

Fundamental principles; wave mechanics, matrix mechanics, perturbation theory; spin and orbital angular momentum; applications to atomic, molecular or nuclear systems; the theory of scattering. Emission and absorption of radiation.

217A. Advanced Quantum Mechanics. (3) II.

Prerequisite: Physics 215B. Mr. Fulco

Second quantization. Nonrelativistic quantum field theory. Application to many body or fundamental particle problems.

217B. Advanced Quantum Mechanics.
(3) III. Mr. Fulco

Prerequisite: Physics 217A.

Introduction to relativistic quantum field theory; theory of the free field; perturbation theoretic techniques; application to quantum electrodynamics.

217C. Advanced Quantum Mechanics.
(3) I. Mr. Fulco

Prerequisite: Physics 217B.

Theory of high energy particles; the content will vary. Possible topics are: S-matrix theory of the strong interactions, scattering at very high energies, weak interactions, particle symmetries.

219. Statistical Mechanics. (3) I.
Mr. Scalapino

Prerequisites: Physics 205 and 215A.

Classical and quantum statistics, ensembles, entropy, H-theorem. Transport properties, critical phenomena, cluster techniques. Applications.

223A–B. Solid State Physics. (3–3) II, III.
Mr. Scalapino

Prerequisite for 223A: Physics 215A. Prerequisite for 223B: Physics 215B.

Phenomenology and theory of the solid state.

Symmetry, crystals, phonons, and band theory of metals. Transport properties and optical, magnetic, thermal, and dielectric properties. Low temperature properties, including superconductivity. Excitons, quasiparticles, and introduction to many-body theory.

224. Nuclear Physics. (3) III. Mr. Eisberg

Prerequisite: Physics 215B.

Nuclear forces. Nuclear models. Nuclear reactions and decay.

225. Elementary Particle Physics. (4) III. Mr. Fulco

Phenomenology of the particles of high energy physics and their strong, electromagnetic, and weak interactions. Fundamental symmetries, invariance principles, and the associated quantum numbers. Where material of this course overlaps that of Physics 125, combined lectures will be given.

226A–B. Physics of Plasmas. (3–3) II, III.

Prerequisite: Physics 210C. The Staff

Elementary interactions in plasmas, plasma kinetics, transport properties, plasma oscillations, magnetohydrodynamics, and magnetohydrodynamic waves.

227A. Principles of Magnetic Resonance. (3) I. The Staff

Prerequisite: Physics 215A, or consent of the instructor.

Elements of the theory of magnetic resonance. The Bloch equations, macroscopic aspects of spin magnetism, interacting spin systems, relaxation phenomena and the method of moments. Hyperfine interactions in atoms and solids. Nuclear and electron spin resonance. Ferro- and antiferro-magnetic resonance.

231. Relativity. (4) II. Mr. Schrank

Prerequisite: Physics 205 and 210C.

Riemannian geometry; gravity as a metric phenomenon. The Einstein field equations, their properties and solutions in cases of physical interest.

240A–B–C. Physics of Instrumentation. (3–3–3) Yr. The Staff

Physical basis of scientific instrumentation: Examples include geometrical and physical optics, generation and detection of electromagnetic radiation, lasers, solid state devices, interaction of particles with matter, acoustics, noise, information theory, kinetic theory and low temperature phenomena.

246A–B–C. Laboratory of Instrumentation. (4–4–4) Yr. The Staff

Detectors, transducers, optical systems, phototubes, microwave cavities and waveguides, integrated circuits, pulsed electronics, solid state detectors, magnetic tapes and memories, computer interfacing and computer control of experiments. Students may pursue other topics of instrumentation of interest to them.

247. Project in Instrumentation. (1–3) I, II, or III. The Staff

Design and construction of a scientific instrument for an actual experiment by a campus research group. The student must also enroll in a Directed Studies course in the department of the research group.

250. Advanced Topics in Astrophysics. (3) I, II, or III. The Staff

Prerequisite: Consent of the instructor.

The course will vary from year to year according to the currents of the times. Course may be repeated with a different topic.

251. Advanced Topics in High Energy Physics. (3) I, II, or III. The Staff

Prerequisite: Consent of the instructor.

The course will vary from year to year according to the currents of the times. Course may be repeated with a different topic.

252. Advanced Topics in Solid State Physics. (3) I, II, or III. The Staff

Prerequisite: Consent of the instructor.

The course will vary from year to year according to the currents of the times. Course may be repeated with a different topic.

253. Advanced Topics in Optics and Spectroscopy. (3) I, II, or III. The Staff

Prerequisite: Consent of the instructor.

The course will vary from year to year according to the currents of the times. Course may be repeated with a different topic.

254. Advanced Topics in Nuclear Physics. (3) I, II, or III. The Staff

Prerequisite: Consent of the instructor.

The course will vary from year to year according to the currents of the times. Course may be repeated with a different topic.

255. Advanced Topics in Theoretical Physics. (3) I, II, or III. The Staff

Prerequisite: Consent of the instructor.

The course will vary from year to year according to the currents of the times. Course may be repeated with a different topic.

260A. Seminar in Advanced Topics. (1) I, II, III. The Staff

260B. Seminar in Nuclear Physics. (1) I, II, III. The Staff

260C. Seminar in Molecular Physics. (1) I, II, III. The Staff

260D. Seminar in Theoretical Physics. (1) I, II, III. The Staff

260E. Seminar in Solid State Physics. (1) I, II, III. The Staff

595AA–595ZZ. Directed Studies. (1–6) I, II, III. The Staff

Prerequisite: Consent of the instructor.

May be repeated for credit up to 12 units. Each staff member has his own directed studies course identified by the same letter code as the 599 series.

596AA–596ZZ. Directed Reading in the Current Literature. (1–6) I, II, III.

Prerequisite: Consent of the instructor. The Staff

May be repeated for credit up to 12 units. Each staff member has his own directed reading course identified by the same letter code as the 599 series.

597. Preparation for the Qualifying Examination. (1–4) I, II, III. The Staff

Prerequisite: Consent of the graduate adviser.

Directed group or individual preparation for the doctoral qualifying examinations.

599AA–599ZZ. Dissertation Preparation. (1–6) I, II, III. The Staff

Prerequisite: Consent of the instructor.

Research, either experimental or theoretical may be taken by properly qualified graduate students under the direction of a staff member. Each staff member has his own research course identified by the following letter code: P. H. Barrett, 599PB; H. P. Broida, 599HB; D. O. Caldwell, 599DC; D. S. Cannell, 599SC; R. M. Eisberg, 599RE; V. B. Elings, 599VE; J. R. Fulco, 599JF; L. H. Hall, 599LH; J. B. Hartle, 599JH; D. W. Hone, 599DH; V. Jaccarino, 599VJ; A. S. Krass, 599AK; H. W. Lewis, 599HL; R. Morrison, 599RM; S. Peale, 599SP; R. F. Sawyer, 599RS; D. J. Scalapino, 599DS; G. E. Schrank, 599GS; B. G. Silbernagel, 599BS; R. L. Sugar, 599LS; and W. C. Walker, 599WW.

POLITICAL SCIENCE

Stanley V. Anderson, Ph.D., *Professor of Political Science.*
Gordon E. Baker, Ph.D., *Professor of Political Science.*
Roger H. Davidson, Ph.D., *Professor of Political Science.*
William Ebenstein, Ph.D., LL.D., *Professor of Political Science.*
Russell H. Fitzgibbon, Ph.D., LL.D., *Professor of Political Science.*
Stephen S. Goodspeed, Ph.D., *Professor of Political Science.*
Wolfram Hanrieder, Ph.D., *Professor of Political Science.*
Dean Mann, Ph.D., *Professor of Political Science, (Chairman of the Department).*
[1]Peter H. Merkl, Ph.D., *Professor of Political Science.*
C. Herman Pritchett, Ph.D., *Professor of Political Science.*
Henry A. Turner, Ph.D., *Professor of Political Science.*
Robert G. Wesson, Ph.D., *Professor of Political Science.*
Raghaven Iyer, D.Phil., (Oxon.), *Associate Professor of Political Science.*
[3]John E. Moore, Ph.D., *Associate Professor of Political Science.*
Robert C. Noël, Ph.D., *Associate Professor of Political Science.*
[4]Haruhiro Fukui, Ph.D., *Assistant Professor of Political Science.*
Michael Gordon, Ph.D., *Assistant Professor of Political Science.*
Richard Harris, Ph.D., *Assistant Professor of Political Science.*
Carl C. Hetrick, Ph.D., *Assistant Professor of Political Science.*
Alan P.L. Liu, Ph.D., *Assistant Professor of Political Science.*
A. E. Keir Nash, Ph.D., *Assistant Professor of Political Science (Vice-Chairman of the Department).*
Thomas S. Schrock, Ph.D., *Assistant Professor of Political Science.*
[4]R. J. Snow, Ph.D., *Assistant Professor of Political Science.*
[3]Alan J. Wyner, Ph.D., *Assistant Professor of Political Science.*
Charles Ornelas, *Lecturer in Political Science.*
Robert Casier, Ph.D., *Lecturer in Political Science.*
Joseph Lodge, LL.B., *Lecturer in Political Science.*

The Major

1. Required lower division work in Political Science: Political Science 12 *or* 5 and 10; Political Science 45 or Political Science 25††.

2. Required work in cognate disciplines: 5 courses from *three* of the disciplines listed below, including at least one course in History. Recommended courses are as indicated; substitutions may be made with the consent of the Department of Political Science.

Anthropology 2 (or 101), 106, 108, 113.
Economics 1, 2 (or 109)
History 4A–B–C, 17A–B, 19A–B
Psychology 1 (or 101), 102
Sociology 1, 2, 3 (or 101)

3. Required upper division work in Political Science: 36 units from *four* of the following fields:‡ (upper division courses are not open to freshman)

   1. Political Theory (101, 110, 111, 113, 117, 187, 188, 189).
   2. Public Law (115, 117, 165, 166, 167).

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[1] Absent on leave, fall 1971.
[3] Absent on leave, spring 1972.
[4] Absent on leave, 1971–72.

†† Students planning to major in Political Science are encouraged to enroll in Political Science 12. Those students selecting Political Science 25 are also expected to complete at least one upper division comparative government course. With the Department's approval, the Political Science 45 requirement may be satisfied through previous course work in comparative government.

‡Political Science 100 does not count toward the 36-unit upper division requirement for the major. In exceptional cases, the major adviser may approve the inclusion of an additional 4 units from cognate disciplines as part of the total 36 units.

3. Politics (106, 152, 153, 154, 155, 156, 157, 172, 173, 174, 175, 176, 182).
4. Public Administration (180, 181, 184, 185, 193).
5. International Relations (121, 122, 124, 125, 126, 127, 128, 129, 131, 132, 134).
6. Comparative Government (105, 130, 133, 135, 136, 138, 139, 140, 141, 142, 143, 144, 146, 147, 148A–B, 149, 184).

The Minor

Thirty units are required: Political Science 5 and 10, 45,† and twenty upper division units selected from at least three of the Political Science fields.

Combination Social Sciences Major

Students interested in obtaining a major in the combined Social Sciences, see listing under "Social Sciences," page 320 of this bulletin.

THE DEGREE OF MASTER OF ARTS

The M.A. degree in political science is offered both under Plan I, the thesis plan, and Plan II, the comprehensive examination plan. The department normally operates under Plan II, but in exceptional cases the student, with the consent of the department chairman, may follow Plan I. Applicants are encouraged to request from the Department a copy of the current "Graduate Program Statement" which offers a more detailed explanation of the program. In addition applicants are generally expected to submit results of the Graduate Record Examination.

Plan I. Thesis Plan

1. Candidates must complete at least 36 units of course work, including credit for the thesis.
2. The required course work will normally be completed in graduate courses in political science. A maximum of 4 units may be in 598 courses representing credit for research underlying the thesis. For certain programs, and with the approval of the student's adviser, a maximum of 8 of the remaining units making up the required total of 36 may be included from graduate courses in related disciplines.
3. Candidates will be required to complete, in graduate standing, course work in three of the political science fields.
4. Before certifying a student for formal advancement to candidacy, the department reserves the right to satisfy itself as to the candidate's proficiency by means of special written or oral examinations.

Plan II. Comprehensive Examination Plan

1. Candidates must complete at least 36 units of course work.
2. The required course work will normally be completed in graduate courses in political science. For certain programs, and with the approval of the student's adviser, a maximum of 8 units may be included from graduate courses in a related discipline.
3. Candidates will be required to complete, in graduate standing, course work in three of the political science fields.
4. Candidates must pass oral examinations in two fields, in addition to having completed two graduate courses or seminars outside of his examination fields.

THE DOCTORAL PROGRAM

Admission: Completion of the Master of Arts degree or its equivalent is the normal prerequisite for admission to the doctoral program. Admission is by approval of the Graduate Dean and by the departmental chairman. Only strong performance in previous undergraduate or graduate studies will be considered as justification for undertaking work toward the doctorate. Applicants are encouraged to request from the Department a copy of the current "Graduate Program Statement" which offers a more detailed explanation of the program. In addition, applicants are generally expected to submit results of the Graduate Record Examination.

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† With the Department's approval, the Political Science 45 requirement may be satisfied through previous course work in comparative government. Upper division transfer students should consult the Department to determine appropriate courses for satisfying lower division requirements.

Specific Requirements for the Ph.D. Degree: The award of the degree of Doctor of Philosophy is not based merely on the fulfillment of technical requirements, but signifies that the Department of Political Science is satisfied that the candidate is professionally qualified as a political scientist, competent to carry on scholarly research and academic instruction in his fields of specialization. The following specific requirements should be taken in this context.

1. *Residence.* The University of California requires a minimum of two years' full-time residence in graduate study for the doctorate, at least one year of which must be spent in continuous residence at the University. One year of this residence is required after the student has been formally advanced to candidacy, i.e., upon the successful completion of the qualifying examinations. Normally, students will require two years of resident graduate study at this or other universities before taking the qualifying examinations.

2. *Languages.* The candidate must demonstrate a thorough knowledge of one foreign language or competence in the use of specialized research methods. Whatever option is chosen, it must be completed prior to taking the written qualifying examinations. Further details may be found in the "Graduate Program Statement."

3. *Fields of Study and Qualifying Examinations.* The work offered in political science falls into six fields: political Theory, Public Law, Politics, Public Administration, International Relations, and Comparative Government (including area studies). Political Science 203 or its equivalent is normally required of all Ph.D. candidates. Each Ph.D. candidate will be expected to demonstrate competence in three fields of Political Science by means of written qualifying examinations. In addition, he must take a minimum of three graduate courses or seminars or their equivalent in a fourth field of Political Science. Upon the recommendation of his advisory committee and approval of the Graduate Adviser, a student may substitute a field from a related discipline when such a substitution will enhance the overall competence of the student in his major field within Political Science. Other than in exceptional circumstances, this outside field may be substituted only for the field of Political Science normally satisfied by course work, and must be completed prior to taking the written qualifying examinations in the other three fields.

After successful completion of the written qualifying examinations the student will take an oral examination which will explore his overall competence as a political scientist. Particular emphasis will be placed on his major field and on important substantive, epistemological, or methodological topics and problems in the discipline.

4. *The Dissertation.* With the advice and approval of the doctoral committee, each student will select a dissertation topic in his major field of specialization. The dissertation must be based on original research and must make a significant contribution to knowledge in the field.

TEACHING CREDENTIALS

Either a major or a minor in Political Science may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of Political Science and in the Graduate School of Education.

POLITICAL SCIENCE

Lower Division Courses

5. American Government: The Constitutional System. (3) I, II, III. The Staff

The functions, development, and interpretation of the American Constitution; federalism; the role of the Supreme Court; civil liberties and civil rights. For lower division students only. (For satisfaction of American History and Institutions Requirement, see p. 53.

10. American Government: The Political Process. (3) I, II, III. The Staff

Parties, interest groups, campaigns, and elections; Congress and the Presidency. For lower division students only. (For satisfaction of American History and Institutions Requirement, see p. 53.

12. American Government and Politics. (5) I. The Staff

Political ideas, institutions, and processes of American government. The role of Congress and the President in policy formation and of the Supreme Court in interpreting the Constitution. Recommended for majors. Not open to students who have received credit for Political Science 5, 10, or 100.

15. American Government: Contemporary Issues of Public Policy. (3) III. The Staff

Prerequisite: an introductory course in American government or consent of instructor.

An analysis of selected major political conflicts and governmental programs in the United States.

19. Political Science Conference. (3) I, II, III. The Staff

Seminar on selected central themes in political science. Themes will vary according to instructor. Intended for lower division majors; Political Science 19, however, does not count toward completion of major requirements.

25. Theory and Practice in Politics. (4) II. Mr. Iyer

An introduction to the basic problems of political life, as construed in theory and confronted in practice, with emphasis on the objectives of securing public order, social harmony and the common good. Examples will be chosen from ancient city-states, the modern nation-state and contemporary attempts to secure world order. Different versions of the dialectic will be explained.

45. Contemporary Political Ideologies and Systems (4) I, III. Mr. Ebenstein, Mr. Merkl

The main political forces, institutions, and ideologies in the world today.

Upper Division Courses

100. American National Government. (4) I, II, III. The Staff

Institutions of our national government and the political ideas on which these institutions have been established; the role of Congress, the President, the courts, administrative agencies, and regulatory legislation. Not open to students who have received credit for Political Science 5 or 10, or 12. (For satisfaction of American History and Institutions Requirement, see p. 53.

101. Political Inquiry. (4) I. Mr. Noël

Theories, techniques and problems of quantitative and other approaches to the data of politics; research design and application; the role of values.

105. Comparative Political Analysis. (4) III. The Staff

The concepts, theoretical perspectives, and political phenomena central to comparative analysis and area studies. A core course generally recommended and in some instances required for advanced work in comparative government.

106. Simulated Behavioral Processes. (4) III. Mr. Noël

Prerequisite: Consent of the instructor.

Applications of simulation and gaming methodologies in the analysis of social and political processes.

110. Political Concepts. (4) III. Mr. Iyer

Introduction to some of the main concepts of political theory, such as the individual and the state, freedom and equality, political obligation, and their relevance to modern society and government.

111. Anarchist Thought. (4) I. Mr. Iyer

An examination of the diverse and enduring strains of anarchist thought concerning the reconstruction of society, politics, and the individual personality. Theories and programs from Godwin to Gandhi, the late 18th century to the present, will be considered with an emphasis on the relation between theory and practice. (This course is designed for majors; non-majors must secure permission of instructor.)

113. American Political Thought. (4) I, II. Mr. Baker

The origin and development of significant political ideas in the United States, as expressed in the contributions of selected thinkers.

115. Law in the Modern State. (4) I. Mr. Pritchett, Mr. Schrock

Legal institutions in democratic societies, with particular reference to the United States. The role of lawyers, judges, and courts. The unique functions of the Supreme Court in the American political system. Judicial reasoning as reflected in selected decisions.

117. Jurisprudence. (4) III. Mr. Anderson, Mr. Schrock

Prerequisite: Political Science 115 or consent of instructor.

An inquiry into the nature of law and justice.

121. International Politics. (4) II, III. Mr. Gordon, Mr. Hanrieder

An examination of theories concerning the actions, interactions and relationships among nation-states.

122. Selected Problems in International Politics. (4) III. Mr. Gordon

Prerequisite: Political Science 121, or consent of instructor.

Theoretical analysis of some significant problems in the relations among nation-states during the twentieth century. Likely topics: Origins of World War I; Munich Crisis; Origins of the Cold War; Evolution of East-West Relations; Vietnam War.

124. International Organization. (4) III. Mr. Goodspeed

The nature and function of international organization, stressing an evaluation of the experience of the League of Nations and the United Nations; regional organizations and specialized agencies.

125. International Law. (4) I. Mr. Anderson

Prerequisite: Political Science 115 or consent of instructor.

Nature and sources of international law; international legal personality; nationality; territory; jurisdiction; diplomatic and consular agents; treaties; war; neutrality.

126. International Relations of the West Pacific Region. (4) I. Mr. Fukui

The foreign relations of China, Japan, and Korea as interpreted in terms of contemporary international relations theory and concepts.

127. American Foreign Policy. (4) I, III Mr. Hanrieder, Mr. Nash

The United States in world politics. Policy making institutions, particularly the Presidency, Congress, State Department, and the military establishment. Interaction between domestic and external politics.

128. Soviet Foreign Policy. (4) II. Mr. Wesson

The foreign policies of the Soviet Union considered in relation to such concepts as continuity and change, Messianism and real-politik, tactics and strategy, coexistence expansion.

129. Foreign Policies of Western European Powers. (4) III. Mr. Gordon

Contemporary policies of Britain, France, Germany, Italy.

130. Comparative Communist Systems. (4) III. The Staff

A comparative examination and analysis of the Communist systems of Eastern Europe, Soviet Russia and China, with particular reference to sources of growing diversity in institutions, concepts of man and society, economic policy and the role of the party.

131. China in World Affairs. (4) III. Mr. Liu

The ideological and cultural attitudes of mainland China, with emphasis on general policies both within the Communist world and other areas (South Asia, Africa, and America).

132. Latin America in World Affairs. (4) II. Mr. Ornelas, Mr. Fitzgibbon

Relations of Latin America with the United States and other world powers; Pan-Americanism and its relation to world organization.

133. Comparative Urban Politics (4) I. Mr. Ornelas

A comparison of the impact of urban growth and and development on the urban political process, with particular attention to the developing nations. In a comparative framework an examination of differences in the politics of ethnic groups in urban America.

134. Nationalism and Communism in East Asia. (4) II. Mr. Fukui

Actions and interactions of the forces of nationalism and communism in East Asian politics, with emphasis on the role of organized groups representing these forces.

135. Government and Politics of Japan. (4) III. Mr. Fukui

The organization and operation of Japanese politics, with particular attention to domestic political forces and problems.

136. Government and Politics of China. (4) II. Mr. Liu

The ideology structure, and functions of the Chinese political system, with emphasis on the nation-building process under the Communist regime.

137. Governments and Politics in South Asia. (4) I. ———

Analysis of the political institutions and processes of South Asia, with emphasis on India. Political organizations and interests; election, the impact of caste, communal, and regional identifications; patterns of Indian state politics.

139. Contemporary Southeast Asia. (4) III. Mr. Fukui

Modern indigenous and international political and social movements of Southeast Asia.

140. Politics of France and Italy. (4) II. Mr. Merkl

Constitutional developments, political parties and governmental organization.

141. Politics of Germany. (4) III. Mr. Merkl

Constitutional developments, political and social forces, and governmental organization of Western Germany and Eastern Germany.

142. British Politics. (4) I. Mr. Gordon

The political culture, history, institutions, and behavior of Great Britain.

143. Government and Politics in the Soviet Union. (4) I. Mr. Wesson

Ideological foundations. Structure and methods of the Communist Party. The apparatus of government and its development.

144. Governments of Central and Eastern Europe. (4) II. The Staff

The political cultures, the structures and functions of governments and ruling parties and instruments of control they employ; ideological foundations and practices; socio-economic problems. Foreign policies, including analyses of cohesive and divisive forces within the Communist bloc.

146. The Political Systems of Tropical Africa. (4) II. Mr. Harris

A comparative analysis of the political systems of a selected number of new states in tropical Africa, with particular emphasis placed upon the social, economic, and cultural setting of politics in these states.

147. The Politics of Developing Areas. (4) II, III. Mr. Liu, Mr. Harris

A comparative analysis of the political systems of a selected number of African, Asian and Middle Eastern countries, with particular attention to the general problems of political development and modernization common to all of them.

148A–B. Governments of Latin America. (4–4) I, II. Mr. Fitzgibbon

148A: A comparative study of governmental and political development, organization and practices in the states of Middle America.

148B: A comparative study of governmental and political development, organization and practices in the states of South America.

149. Comparative Party Systems. (4) II. Mr. Nash

Analysis of the roles performed by political parties in a selected number of industrialized and developing nations. Relationships between party systems and such factors as economic development and social stability.

152. American Political Parties. (4) II. Mr. Davidson, Mr. Turner

The nature, characteristics, and history of American political parties; party organization; political campaigns and finance; nominations, elections, and electoral problems.

152L. American Political Parties Lab. (1) II. Mr. Davidson, Mr. Turner

Laboratory exercises in the study of political parties with emphasis on party organization, nominations, elections and electoral problems. (When offered it must be taken concurrently with 152.)

153. Political Interest Groups. (4) II. Mr. Turner

The nature and function of organized interest groups and their impact upon public opinion and government.

154. Public Opinion. (4) II. Mr. Hetrick

A study of the nature and the means of formation of public opinion. Public opinion as a factor in popular government and as a control device in the modern state.

155. American Legislatures. (4) I. Mr. Davidson, Mr. Mann

The organization, operation, and politics of Congress and the state legislatures; problems of representation, leadership, and relations with interest groups.

155L. American Legislatures Lab. (1) I. Mr. Davidson, Mr. Mann

Political Science Laboratory in the organization, operation and politics of Congress and the state legislatures; problems of representation, leadership, and relations with interest groups. (When offered it must be taken concurrently with 155.)

156. Analysis of Political Behavior. (4) III. Mr. Hetrick, Mr. Wyner

Theories, methodologies and findings of the behavioral approach to the study of the political system and men in that system. Chief reference is to the American system.

157. The American Presidency. (4) III. Mr. Davidson, Mr. Mann

Analysis of the institution of the Presidency, its functions, formal and informal relationships, and its limitations within the American political system. Emphasis on the dynamics of the Presidency, including presidential personality, conception of role, impact of public opinion, and responses to changes in the environment.

165. Administration of Justice. (4) II, III. Mr. Anderson, Mr. Schrock, Mr. Lodge

An examination of local courts in particular, with emphasis on procedural problems and suggested reforms. The American adversary system is stressed within the context of comparative judicial administration.

166. American Constitutional Law: Distribution of Power. (4) II. Mr. Nash, Mr. Pritchett

Prerequisite: Political Science 115 or consent of instructor.

The role of the Supreme Court as arbiter of federalism and separation of powers; interplay of political, social, and economic forces.

167. Constitutional Law: Civil Liberties. (4) III. Mr. Nash, Mr. Pritchett

Prerequisite: Political Science 115 or consent of instructor.

The role of the Supreme Court as interpreter of constitutional freedom of expression and conscience; procedural guarantees and equal protection of the laws.

172. State and Local Government. (4) I. Mr. Baker, Mr. Snow, Mr. Wyner

Basic problems and recent developments, with emphasis on state political forces, institutions, and processes. Intergovernmental relations.

172L. State and Local Government Lab. (1) I. Mr. Baker, Mr. Snow, Mr. Wyner

Political Science Laboratory in basic problems and recent developments, with emphasis on state political forces, institutions, and processes. Intergovernmental relations. (When offered it must be taken concurrently with 172).

173. Metropolitan Government and Politics. (4) III. Mr. Snow

Problems of politics and administration in urban and metropolitan areas.

Students planning to complete both Political Science 172 and 173 are encouraged to begin with Political Science 172.

173L. Metropolitan Government and Politics Lab. (1) III. Mr. Snow

Laboratory exercises in metropolitan government and politics with emphasis on local interest groups, local decision-making, and intergovernmental relations. (When offered it must be taken concurrently with 173.)

174. Chicano Politics. (4) I. Mr. Ornelas

Political life in the barrio, political behavior of the Chicano community and representation of Chicanos by elected officials and interest groups.

175. Politics of the Environment. (4) III. Mr. Mann

Analysis of environmental policy issues and their treatment in the political process. Discussion of the interplay of substantive issues, ideology, institutions, and private groups in the development, management, protection and preservation of natural resources and the natural environment.

176. Black Politics in America. (4) II. The Staff

A general survey of political phenomena in the Black community. American political institutions, law, legislation and administration will be examined in theory and practice to determine their function in relation to Black politics.

180. Public Administration and Public Policy. (4) I. Mr. Moore
The nature of American bureaucracy, behavior patterns of public officials, and the role of administration in the political process.

180L. Public Administration and Public Policy Lab. (1) I. Mr. Moore
Political Science Laboratory in the nature of American bureaucracy, behavior patterns of public officials, and the role of administration in the political process. (When offered it must be taken concurrently with 180.)

181. Public Administration: Organization and Process. (4) II. Mr. Moore, Mr. Wyner
Concepts and issues of public administration, including theories of organization, decision making, administrative behavior, and budgetary processes. Students planning to complete both Political Science 180 and 181 are encouraged to begin with Political Science 181.

182. Political Decision Processes. (4) III. Mr. Noël
An examination of empirical and normative decision theory, including a) a review of theories of individual and collective choice as they relate to political life, and b) an introduction to models and analytic techniques for optimal decision, with special reference to governmental applications.

184. Comparative Administration. (4) III. Mr. Harris
A comparative analysis of the public bureaucracies of a selected number of developed and developing countries, with particular attention being given to the cultural determinants of administrative norms and behavior.

185. Government and the Economy. (4) I. Mr. Moore
Government's evolving role in economic life; the cultural, political, and philosophical setting of government-business relations; the maintenance and moderation of competition; the goals, methods, and politics of regulatory administration.

187. Political Theory: Ancient and Medieval. (4) I. Mr. Schrock
The development of political theory from Plato and Aristotle to the sixteenth century.

188. Modern Political Theory. (4) II. Mr. Schrock
Development of political ideas from the sixteenth century to the nineteenth century.

189. Recent and Contemporary Political Theory. (4) II. Mr. Ebenstein
Development of political ideas in the nineteenth and twentieth centuries.

No more than a combined total of 8 units of 193, 194, 196 or 199 may apply toward the major requirements.

193. Internship in Government. (4) I, II, III. Mr. Wyner
Prerequisite: Permission of the instructor.
Special seminar for selected students in contemporary urban problems. Offered in conjunction with practical experience in local governmental office. May be repeated for additional 4 units; only 4 units will apply to the major.

194. Group Studies. (1–4) I. The Staff
Subject to Departmental approval, students may repeat this course. Only 4 units may apply to the major.

196. Senior Seminar in Political Science. (4) I, II, III. The Staff

199. Independent Studies in Political Science. (1–5) I, II, III. The Staff
Admission by special permission only. For majors. No more than 4 units of 199 may count toward completion of the major requirements.

Graduate Courses

203. The Nature of Political Inquiry. (4) I, III. The Staff

204. The Design and Analysis of Political Research. (4) II. Mr. Noël, Mr. Snow

205. Data Collecting Techniques in Political Research. (4) III. Mr. Hetrick

215. The American Governmental Process. (4) I, III. Mr. Davidson, Mr. Mann

220. Constitutional Interpretation. (4) II. Mr. Schrock

225. International Relations. (4) I, III. Mr. Gordon, Mr. Hanrieder

230. Comparative Political Systems. (4) I. Mr. Merkl

240. Experimental Studies in Political Science. (4) II. Mr. Noël

251. Seminar in the Policy Process. (4) II. Mr. Mann

252. Seminar in Public Opinion and Political Participation. (4) II. Mr. Hetrick

253. Seminar in Political Interest Groups. (4) I. Mr. Turner

254. Seminar in the Legislative Process. (4) II. Mr. Davidson, Mr. Mann

255. Seminar in State Government and Politics. (4) III. Mr. Wyner, Mr. Baker

256. Seminar in the American Presidency. (4) II. Mr. Davidson, Mr. Mann

257. Seminar in Urban Government and Politics. (4) III. Mr. Snow

259. Seminar in Political Parties. (4) II. Mr. Turner

260. Seminar in the Judicial Process. (4) II. Mr. Pritchett

261. Seminar in Public Law. (4) I. Mr. Schrock, Mr. Anderson

262. Seminar in American Constitutional Law. (4) III. Mr. Pritchett

265A. Seminar in Political Theory: Ancient and Medieval. (4) I. Mr. Ebenstein

265B. Seminar in Political Theory: Modern. (4) II. Mr. Ebenstein

265C. Seminar in Political Theory: Contemporary. (4) III. Mr. Ebenstein

268. Seminar in American Political Thought. (4) III. Mr. Baker

269. Seminar in Political Concepts. (4) II. Mr. Iyer

271. Seminar in International Politics. (4) III. Mr. Wesson

272A–B. Seminar in International Law and Organization. (4) (4–4) I, II. Mr. Anderson, Mr. Goodspeed

274. Seminar in Theories of International Politics. (4) II. Mr. Hanrieder

277. Seminar in American Foreign Policy. (4) III. Mr. Hanrieder

278. Seminar in Comparative Foreign Policies. (4) III. Mr. Gordon

280A–B. Seminar in Soviet Studies. (4–4) II, III. Mr. Wesson

Prerequisite for 280A: Political Science 230 or equivalent. 280B: Political Science 280A or equivalent.

281. Seminar in Comparative Communist Systems. (4) II. The Staff

282A–B. Seminar in Latin American Governments. (4–4) II, III. Mr. Fitzgibbon

283. Seminar in Western European Governments. (4) II. Mr. Merkl

284. Seminar in Party Systems, Ideologies, and Socio-Economic Change. (4) III. Mr. Nash

285. Seminar in Chinese Politics. (4) II. Mr. Liu

286. Seminar in Japanese Politics. (4) III. Mr. Fukui

288. Seminar in African Politics. (4) II. The Staff

289. Seminar in Political Development. (4) III. Mr. Harris

290. Seminar in The Study of Public Administration. (4) II. Mr. Moore

291. Seminar in Public Administration and Public Policy. (4) III. Mr. Moore

293. Seminar in Comparative Public Administration. (4) III. Mr. Harris

296. Seminar in Models in Politics and the Social Sciences. (4) III. Mr. Iyer

594AA–594ZZ. Special Topics. (1–4) I, II, III. The Staff

595AA–595ZZ. Group Studies. (4) I, II, III. The Staff

596AA–596ZZ. Directed Reading and Research. (2–12) I, II, III. The Staff

597AA–597ZZ. Individual Study for Master's Comprehensive Examinations and Ph.D. Examinations. (1–12) I, II, III. The Staff

598AA–598ZZ. Master's Thesis Research and Preparation. (1–4) I, II, III. The Staff

599AA–599ZZ. Ph.D. Dissertation Preparation. (1–12) I, II, III. The Staff

PSYCHOLOGY

William D. Altus, Ph.D., *Professor of Psychology.*
Gerald S. Blum, Ph.D., *Professor of Psychology (Chairman of the Department).*
John W. Cotton, Ph.D., *Professor of Education and Psychology.*
Walter C. Gogel, Ph.D., *Professor of Psychology.*
Robert M. Gottsdanker, Ph.D., *Professor of Psychology.*
Howard H. Kendler, Ph.D., *Professor of Psychology.*
Tracy S. Kendler, Ph.D., *Professor of Psychology.*
Charles G. McClintock, Ph.D., *Professor of Psychology.*
David Premack, Ph.D., *Professor of Psychology.*
Alma B. MacGregor, Ph.D., *Professor of Psychology, Emeritus.*
[4]Harry J. Carlisle, Ph.D., *Associate Professor of Psychology.*
John M. Foley, Ph.D., *Associate Professor of Psychology.*
[4]Jerry W. Higgins, Ph.D., *Associate Professor of Psychology.*
Gerald H. Jacobs, Ph.D., *Associate Professor of Psychology.*
Elijah P. Lovejoy, Ph.D., *Associate Professor of Psychology.*
David M. Messick, Ph.D., *Associate Professor of Psychology.*
Robert W. Reynolds, Ph.D., *Associate Professor of Psychology.*
Ben M. Clopton, Ph.D., *Assistant Professor of Psychology.*
Paul D. Nesbitt, Ph.D., *Assistant Professor of Psychology.*
Amado M. Padilla, Ph.D., *Assistant Professor of Psychology.*
Arthur J. Sandusky, Ph.D., *Assistant Professor of Psychology.*
A. Robert Sherman, Ph.D., *Assistant Professor of Psychology.*

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Roberta L. Klatzky, Ph.D., *Acting Assistant Professor of Psychology.*
Roulette W. Smith, M.S., *Acting Assistant Professor of Education and Psychology; Specialist, Computer Center.*

Preparation for the Major

Three lower division departmental courses are required: General Psychology (1); Introduction to Experimental Psychology (3); and Analysis of Data in Psychology (5). These three courses are prerequisites to most upper division courses and should be taken in the freshman or sophomore years. They must be passed with an average grade of 2.5 or higher.

One course in *each* of the following four areas is required: (a) Biology 1A or 20; (b) Physics 1, or 2, or 10; (c) Chemistry 1A or 25; (d) Mathematics 30A, or 34A, or 3A. The Contemporary Natural Science sequence may be substituted for Biology, Physics, and Chemistry. The student is allowed to substitute courses intended for natural science and mathematics majors in place of general education courses given by these departments. The selection of courses to fulfill the general education requirement in natural and social sciences should be made in consultation with department advisers to insure adequate preparation for graduate training in specific areas such as mathematical psychology, physiological psychology, perception, learning, clinical psychology, personality, psycholinguistics, or social psychology.

Requirements for the Major

Thirty-six units of upper division courses in psychology are required for the major. At least 20 units must come from courses numbered 110 through 150 (Group II) including one laboratory course listed among the courses numbered Psychology 110L, 111L, 112L, 113L, and 114L.

Note: A Departmental Honors Program for superior students majoring in psychology will be initiated in 1971–72. Specific information regarding the Honors Program is available in the department office.

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[4] Absent on leave, 1971–72.

Requirements for the Minor

Psychology 1 or 101 and 26 units of upper division courses in psychology, including at least 16 units from the Group I series, satisfy the requirements for the minor.

THE GRADUATE PROGRAM IN PSYCHOLOGY

The department offers work leading to the Ph.D. and M.A. degrees in psychology. Candidates for admission must present a bachelor's degree with a major in psychology or the equivalent. Entering students will be appraised by means of examination and evaluation of records; where necessary, supplementary courses will be required.

DOCTOR OF PHILOSOPHY

1. Satisfactory completion of a set of comprehensive graduate qualifying examinations covering the major fields of psychology.
2. Completion and oral defense of a doctoral dissertation.
3. Satisfactory completion of a teaching assignment.

No student will be admitted to work for the Master of Arts degree only; obtaining the Master of Arts degree en route to the Ph.D. degree in psychology is permitted but not required.

TEACHING CREDENTIALS

Either a major or a minor in psychology may serve as an appropriate part of the program of studies required for an elementary, or secondary teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the Department of Psychology and in the Graduate School of Education. To meet the requirements established by the State Department of Education for a standard teaching credential, 36 quarter units of upper division course work in the major are required.

PSYCHOLOGY

Lower Division Courses

1. General Psychology. (4) I, II. III.
(I. Mr. Kendler, Mr. Dubuc);
(II. Mr. Padilla);
(III. Mr. Kendler)

An introduction to the subject matter and methods of psychology including the physiological basis of behavior, learning and memory, perception and cognition, social behavior and personality.

3. Introduction to Experimental Psychology. (5) I, II, III. (I, Mr. Clopton);
(II. Mr. Gottsdanker);
(III. Mr. Gogel, Mr. McClintock)

(Priority given to majors in Psychology.)
Prerequisite: Psychology 1.

Introduction to the planning and execution of experiments in psychology and to the analysis and interpretation of data.

5. Analysis of Data in Psychology. (5) I, II, III.
(I. Mr. Sandusky); (II. Mr. Smith);
(III. Mr. Lovejoy)

(Priority given to majors in Psychology.)
Prerequisites: Psychology 1 and 3.

Measures of central tendency and dispersion, correlation, the significance of differences. The interpretation of typical data in psychological research.

Upper Division Courses

Group 1. Courses in this category are survey lecture courses, have no prerequisites, and apply to credit for the major and minor as specified.

101. Principles of Psychology. (4) II.
Mr. Altus

Open to upper division students who do not have credit for Psychology 1. May be offered in substitution for Psychology 1 as a general education course and as the prerequisite for certain upper division courses. May not be taken after Psychology 1.

A critical discussion of the major problems and points of view in psychology. Topics include motivation, perception, personality, and learning.

102. Social Aspects of Behavior. (4) I.
Mr. Nesbitt

(May not be taken concurrently with or after Psychology 112 or 112L.)

An introduction to social psychology including attitudes and group dynamics; role conflict, interpersonal influence, reference groups, communication and opinion change, motivated perception, and perception of persons.

103. The Abnormal Personality. (4) I, II.
Mr. Altus

Analysis of disorders with psychogenic components, including neuroses, anxiety states, character disorders, psychosomatic illness, and psychoses.

104. The Exceptional Child. (4) I.
Mrs. Kendler

(May not be taken concurrently with or after Psychology 123.)

The study of children with educational, physical, and emotional handicaps.

106. Brain and Behavior. (4) II, III.
(II. Mr. Jacobs); (III. Mr. Clopton)

(May not be taken concurrently with or after Psychology 113A, 113B, or 113L.)

An examination of contemporary research and theory dealing with the relation between the brain and psychological variables.

107. Perception in Life and Thought. (4) I, III. (I. Mr. Gottsdanker); (III. Mr. Sandusky)

(May not be taken concurrently with or after Psychology 110A, 110B, or 110L.)

Application of the principles of perception to the understanding of art, science, and contemporary life and their reciprocal influence on our understanding of perception.

Group II. This category includes intensive laboratory or lecture courses. Open to junior and senior psychology majors, others by permission of instructor. Prerequisites are Psychology 1, 3, 5, and as specified, or permission of the instructor.

NOTE: At least 20 units for the major in psychology must come from courses in this category.

108. Learning and Memory. (4) III.
Mr. Shiffrin

(May not be taken concurrently with or after Psychology 111A, 111B, or 111L.)

The methods by which humans process, store, and retrieve information.

110A. Perception. (4) I. Mr. Gogel

The role of organizational processes, cue systems, and learning in the perception of object characteristics such as color, form, size, orientation, and distance.

110B. Perception. (4) II. Mr. Sandusky

Prerequisites: Psychology 107 or 110A, and Mathematics 34A or 3A.

The examination of sensory processes and the application of psychophysical methodology to study of the response to sensory information.

110L. Laboratory in Perception. (5) III.
Mr. Foley

Prerequisites: Psychology 107 or 110A or 110B.

A laboratory course emphasizing the formulation and testing of experimental hypotheses in perception as related to problems selected by the student to be of special interest to him.

111A. Learning. (4) I. Mr. Padilla

Principles of instrumental and classical conditioning, avoidance learning, stimulus generalization and discrimination, learning in man and other animals.

111B. Learning. (4) II. The Staff

This course will elaborate on topics discussed in course 111A, and will also cover concept learning, human memory, and problem solving.

111L. Laboratory in Learning. (5) III.
The Staff

Prerequisite: Psychology 111A or 111B.

Students will perform a variety of experiments to illustrate and test the theoretical notions introduced in courses 111A and 111B. Lecture and laboratory.

112. Social Behavior. (4) I. Mr. McClintock

A review of the major problem areas in experimental social psychology including attitudes, social conformity and influence, and social interaction.

112L. Laboratory in Social Behavior. (5) II.

Prerequisite: Psychology 112. Mr. McClintock

Methods, techniques, and typical experimental research in social psychology. Lecture and laboratory.

113A. Physiological Psychology. (4) I.

Prerequisite: Biology 20. Mr. Reynolds

The physiological mechanisms of behavior.

113B. Physiological Psychology. (4) II.

Prerequisite: Psychology 113A. Mr. Dubuc

The physiological mechanisms of behavior.

113L. Laboratory in Physiological Psychology. (5) III. Mr. Dubuc

Prerequisites: Psychology 113A and 113B.

A study of the techniques and experimentation in physiological psychology. Lecture and laboratory.

114. Personality Dynamics. (4) I.
Mr. Sherman

Prerequiste: Senior major in psychology, or permission of the instructor.

Discussion of the role of unconscious mental forces in shaping personality. Case history materials and illustrative research included.

114L. Laboratory in Personality. (5) II.

Prerequisite: Psychology 114. The Staff

Topics of current interest in personality with concurrent experimentation, analysis of data, and preparation of laboratory reports.

115. Conceptions of Intelligence. (4) III.
Mr. Altus

Historical consideration of intelligence and its measurement.

120. Formal Models in Psychology. (4) III.

Prerequisite: Psychology 150. Mr. Smith

An analysis of selected mathematical and computer models of psychological processes with consideration given to the value and weaknesses of such theories in understanding behavior.

*__121. Psychological Measurement.__ (4)

Consideration both of the theoretical foundations of psychological measurement; including problems of reliability, validity, norms, and prediction, and of the techniques by which aptitude, achievement, and personality tests are constructed and evaluated.

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* Not to be given, 1971–72.

122. Motivation and Emotion. (4) I.
Prerequisite: Psychology 111A. Mr. Premack

A study of the basic principles of motivation worked out on the basis of infra-human subjects with references to tests on human subjects whenever possible. Do principles of animal motivation apply to man? Are additional principles required for man? These are two of the basic questions addressed. A competence in principles of learning is assumed.

123. Developmental Psychology. (4) III.
Mrs. Kendler

Prerequisite: Psychology 108 or 111A.

Analysis of the influence of developmental processes on behavior.

***124. Comparative Psychology.** (4)

Analysis of behavior of different species.

***126. History and Systems of Psychology.** (4)

Prerequisite: Senior standing and a B average in psychology.

Major stages in the emergence of various systems in psychology. Nineteenth century structuralism, functionalism, behaviorism, Gestalt psychology and psychoanalysis.

127. Psychology of Language. (4) III.
The Staff

The psychological nature of linguistic theory; linguistic structure as a factor in learning, perception, and comprehension; language acquisition; multilingualism; models of language.

***128. Human Thinking and Problem Solving.** (4)

An examination of theories and supporting evidence regarding the nature of human thought processes.

129. Modern Approaches to Psychotherapy. (4) III. Mr. Sherman

Prerequisites: Psychology 108 or 111A and either 103 or 114.

Analysis and evaluation of contemporary approaches to the treatment of maladaptive behavior with particular emphasis on behavior modification procedures. Related discussion concerning the identification of behavior pathology, the specification of treatment operations, and the criteria for assessing therapeutic change.

130. Psychology of Urban Living. (4) III.
Mr. Nesbitt

Exploring the stresses of urban life and some psychological and physiological consequences.

132. Sensory Psychophysiology. (4) III.
Mr. Jacobs

Prerequisite: Psychology 106 or 113A.

Physiological and psychophysical approaches to the study of sensory systems.

133. Pharmacological and Biochemical Basis of Behavior. (4) III. Mr. Reynolds

Prerequisites: Chemistry 25, or its equivalent, and Psychology 106 or 113A.

An examination of the effects of variations in body chemistry occurring either normally or induced by drugs on behavior. Emphasis will be on biochemical and physiological mechanisms.

134. Cooperation, Competition, and Conflict. (4) II. Mr. Messick

A study of the psychological and social psychological bases of intragroup and intergroup cooperation, competition, and conflict in animal and human behavior.

135A–B–C. Field Experience in Psychological Settings. (3) I, II, III.
Mr. Sherman

Prerequisites: Psychology 103 or 114 or 129, senior majors, *and* permission of the instructor; the student must take 135A and 135B while 135C is optional (unit credit toward the major is only given for A and B.)

Supervised field experience in settings providing psychological services with opportunities for observation and participation. Students will spend approximately 4 hours per week in psychological settings, attend weekly class meetings, read related material, and prepare written reports.

136. The Psychology of Skill. (4) III.
Mr. Gottsdanker

An analysis of motor coordination and information-processing skills from the points of view of underlying mechanisms, acquisition, and individual differences.

***150. Advanced Analysis of Data in Psychology.** (5)

Application of statistical methods to the design and analysis of psychological investigations and to the interpretation of quantitative data in psychology.

Group III. Courses in this category are designed for the advanced student with specialized interests in substantive and theoretical areas of psychology.

160. Special Topics in Psychology. (4) I, II, III. The Staff

Prerequisite: Only 8 units will be counted toward major credit.

Lectures in special areas of interest in contemporary psychology. Specific course titles to be announced by the department prior to each quarter.

170. Seminars in Psychology. (2) I, II, III.
The Staff

Prerequisites: Psychology 1, 3, 5, and permission of the instructor. Only 6 units will count toward major credit.

Small group seminars in selected areas for advanced undergraduates. Students may suggest seminars to be organized under the direction and sponsorship of faculty members.

***198. Undergraduate Seminar.** (3)

Prerequisites: Psychology 1, 3, 5, and permission of the instructor. Course may be repeated for a total of 6 units.

Special studies in the behavioral sciences by visiting scholars in residence. To be offered intermittently.

199. Independent Studies. (1–5) I, II, III.
The Staff

Prerequisite: advanced status (usually senior level, B average in previous college work).

Study or research under guidance of a member of the department. Students wishing to enroll should prepare a short plan of study for their course work. 199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

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* Not to be offered 1971–1972.

Graduate Courses

Full graduate status in psychology or permission of the instructor is prerequisite to all graduate offerings.

221A. Design and Measurement. (4) I.
Mr. Messick

Experimental design and statistical analysis in psychological research. Includes basic probability, sampling and distribution theory, hypothesis testing and estimation.

221B. Design and Measurement. (4) II.
Mr. Messick

Prerequisites: Psychology 221A or permission of the instructor.

Experimental design and statistical analysis in psychological research. Analysis of variance and related topics.

222. Social Psychology and Decision Making. (4) III. Mr. McClintock, Mr. Messick

Examination of conflict and cooperation, group effects on individual performance, subjective probability, choice and human information processing.

223. Personality. (4) III. Mr. Blum

Structure, development, and dynamics of personality. Consideration of major personality theorists.

224. Learning. (4) I. Mr. Kendler

Introduction to contemporary methodological and theoretical developments in the field of learning.

225. Motivation. (4) II.
Mr. Premack, Mr. Lovejoy

Analysis of contemporary theories and models of motivation.

226. Developmental Psychology. (4) II.
Mrs. Kendler

Introduction to contemporary developmental psychology. Although the emphasis is on human development, infrahuman development is included.

***227. Memory.** (4)

Analysis of theory and research in long-term and short-term memory.

228. Perception. (4) II. Mr. Foley

Analysis of psychophysical relations in sensory processes with stress on detection, scaling, discrimination, spatial and temporal resolution and the interaction of cue systems in perceptual behavior.

229. Physiological Psychology. (4) I.
Mr. Jacobs, Mr. Reynolds

Examination of neural and endocrine mechanisms underlying vertebrate motivational systems.

230. Psychophysiology of Vision. (3) II.
Mr. Jacobs

Consideration of the physiological and psychophysical data bearing on the major features of vision in vertebrates.

231. Advanced Techniques in Physiological Psychology. (3) II.
Mr. Clopton, Mr. Reynolds

Prerequisite: Psychology 229.

Advanced techniques in behavioral research utilizing physiological methods, with particular emphasis on primates.

234. Stimulus and Response Measurement. (3) II. Mr. Reynolds

Examination of the theory and practical problems of stimulus and response measurement in psychology.

235. Psychophysiology of Audition. (3) III.
Mr. Clopton

Prerequisites: Psychology 229 or permission of instructor.

Physiological and psychophysical approaches toward analysis of the hearing process.

242A. Hypnosis as a Research Tool. (3) I.
Mr. Blum

Combined lecture-laboratory course on uses of hypnosis as a research tool in diverse fields of psychology. Students participate in screening of hypnotic subjects under supervision and also design and execute experiments in areas of their own special interest.

242B. Hypnosis as a Research Tool. (3) II.

Prerequisite: Psychology 242A. Mr. Blum

Continued laboratory experience with students carrying out individual projects under supervision. Also discussion of hypnotic experiments growing out of a conceptual model of the mind.

243. Behavior Modification. (3) II.
Mr. Sherman

Survey of behavior modification procedures and the theories underlying their development. Topics include systematic desensitization and variants thereof, assertive training, drugs, operant conditioning procedures, hypnosis, extinction procedures, and aversive conditioning. Prior familiarity with learning theories required.

***244. Psychopathology.** (3)

Experimental approaches to the etiology, processes, and modification of deviant behavior, with emphasis upon the psychoses.

250. Decisional and Social Processes. (3) II.
Mr. Nesbitt

A review of the psychological and social bases of decision making, choice behavior, and various patterns of social interaction.

***261. Conceptual Problems in Psychology.** (3)

Analytic techniques of philosophy of science applied to historical and contemporary systems of psychology.

262. Formal Models. (3) II. Mr. Cotton

This course concentrates on mathematical models for behavior. Several specific models and programs are discussed in detail, and these formal theories are compared with more informal, verbal theories.

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* Not to be offered 1971–1972.

263A–B. Computer Simulation of Psychological Processes. (3) A I, B II. Mr. Smith

The prerequisite for 263B is 263A.

An up to date review of research on computer simulation of psychological processes. Some of the processes to be considered in detail are thinking, learning, understanding teaching, dialogue, and conflict resolution.

***264. Computer-Assisted Instructional Systems.** (3)

A methods course in computer-assisted instruction.

***265. Comparative Behavior.** (3)

Analysis of behavioral and physiological data and theories through comparative methods.

271. Spatial Perception. (3) II. Mr. Gogel

An examination of experimental, methodological, and theoretical approaches to the study of the perception of extent and the interaction of spatial and other characteristics in the achievement of a stable visual world.

272. Decisional Sequences. (3) III. Mr. Gottsdanker

The time-course description of information-processing and self-initiated activities, and the postulated underlying mechanisms.

594A–594Z. Special Topics. (2) I, II, III. The Staff

Special seminar on research subjects of current interest. Each faculty member has his own letter designation which is the same as in the 599 series.

596A–596Z. Directed Reading and Research. (2–6) I, II, III. The Staff

The purpose of this course is to provide supervised experience in experimental design and laboratory procedures on selected topics, including the formulation of experimental problems, discussion of relevant literature and the analysis and interpretation of experimental results. Required of all first and second year psychology graduate students. Minimum of two units per quarter. No more than half the units necessary for the Master's Degree may be taken in 596. Each faculty member has his own letter designation which is the same as in the 599 series.

597. Individual Study for Ph.D. Examinations. (1–12) I, II, III. The Staff

Preparation for Ph.D. examinations under supervision of chairman of student's doctoral committee. Course is limited to no more than 24 units total.

598A–598Z. Master's Thesis Research and Preparation. (2–6) I, II, III. The Staff

Research and preparation for the Master's thesis. Course is limited to no more than 12 units total. Since the student is already granted 6 units credit toward the degree, no unit credit will be given. Each faculty member has his own letter designation which is the same as in the 599 series.

599A–599Z. Ph.D. Dissertation Preparation. (2–6) I, II, III. The Staff

Empirical and theoretical investigations of special problems in psychology in relation to dissertation preparation. Required each quarter of all third and fourth year graduate students. Course is limited to no more than 12 units total. Each faculty member has his own graduate research course identified by the alphabet code following the course number, as follows: W. D. Altus, 599A; G. S. Blum, 599B; H. J. Carlisle, 599C; B. M. Clopton, 599I; J. M. Foley, 599F; W. C. Gogel, 599U; R. M. Gottsdanker, 599G; J. Higgins, 599H; G. H. Jacobs, 599J; H. H. Kendler, 599K; T. S. Kendler, 599T; R. L. Klatzky, 599X; E. P. Lovejoy, 599L; C. G. McClintock, 599Q; D. M. Messick, 599M; P. D. Nesbitt, 599N; A. M. Padilla, 599O; D. Premack, 599P; R. W. Reynolds, 599R; A. J. Sandusky, 599Z; A. R. Sherman, 599Y; R. W. Smith, 599S.

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* Not to be offered 1971–1972.

RELIGIOUS STUDIES

[1, 3]Robert Michaelsen, Ph.D., *Professor of Religious Studies.*
Thomas F. O'Dea, Ph.D., *Professor of Religious Studies and Sociology.*
D. Mackenzie Brown, Ph.D., *Professor of South Asian Studies, Emeritus.*
Walter H. Capps, Ph.D., *Associate Professor of Religious Studies (Director, Institute of Religious Studies).*
W. Richard Comstock, Th.D., *Associate Professor of Religious Studies.*
Birger A. Pearson, Ph.D., *Associate Professor of Religious Studies.*
Gerald J. Larson, Ph.D., *Associate Professor of Religious Studies (Chairman of the Department).*
Wilbur M. Fridell, Ph.D., *Assistant Professor of Religious Studies.*

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Matthias Vereno, Ph.D., *Visiting Professor of Religious Studies.*
Charles Wendell, Ph.D., *Lecturer in Arabic and Religious Studies.*
F. Brent Knutson, Ph.D., *Lecturer in Religious Studies.*
Janet O'Dea, M.A., *Lecturer in Religious Studies.*
M. Gerald Bradford, M.A., *Associate in Religious Studies.*
Charles Fogarty, M.A., *Associate in Religious Studies.*

The courses in Religious Studies are designed to provide students with the intellectual tools and scholarly background required for a critical understanding of the forms and traditions of religion that have appeared in human culture. The religious phenomena of preliterate cultures and of both Eastern and Western civilizations are analyzed.

Preparation for the Major

One lower division course in religious studies; History 19A–B, eight units from History 4A–B–C; four units from Art 2A–B–C; and Philosophy 20A. In planning for meeting his foreign language requirement the prospective major is urged to consult with his advisor in order to choose the language which will be most useful to him, especially if he is interested in pursuing advanced study.

Requirements for the Major:

1. The student shall consult with his departmental advisor concerning his program.
2. Forty-eight units of upper division courses, of which a minimum of four must and a maximum of twelve may be selected from cognate courses in other departments. (Cognate courses must be selected in consultation with the major's advisor.) No more than 8 units from the 159 sequence may be applied toward the total of 48 required for the major.
3. A minimum of eight units in each of the following three areas:
   a) Western Religious Studies: 100A–B, 103, 115, 116, 117, 119, 121, 122, 124, 125, 126, 130, 131, 132, 134, 135, 136, 139, 140, 141, 151A–B, 152, 174, 175, 181, 185, 187.
   b) Asian Religious Studies: 159A–B–C–D–E–F, 160, 161, 162, 163, 164A–B, 166, 167A–B.
   c) Religion and Culture: 105, 151A–B, 152, 156, 158, 166, 167A–B, 169, 170, 171, 172, 174, 175, 176, 177.
4. Four units of Religious Studies 197 (Senior Seminar).

Requirements for the Minor:

One lower division course in religious studies, 24 units of upper division courses in religious studies.

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[1] Absent on leave, fall 1971.
[3] Absent on leave, spring 1972.

THE DEGREE OF MASTER OF ARTS

1. *Admission:* In addition to fulfilling the general requirements for admission to graduate status, the Department will require an acceptable level of performance on the Aptitude Test of the Graduate Record Examination and on the Miller Analogies Test. Applicants are urged to take these tests at their earliest convenience and to have the results forwarded to the Graduate Division.

2. *Undergraduate Preparation:* Students who do not have an undergraduate concentration in religious studies will be required to make up deficiencies by taking relevant undergraduate courses at UCSB.

3. *Foreign Language:* A reading examination in French or German must be passed before enrolling for a fourth quarter and before taking the comprehensive written examination. Information on methods for satisfying this requirement is available in the Department Office.

4. *Course Requirements:* Plan II, as described in the Bulletin of the Graduate Division, will be required of all students. This plan requires a minimum of 36 units of course work, of which at least 20 must be in graduate courses, and a comprehensive examination. Eight units in Religious Studies 230, Seminar in the History and Theory of Religion, are required. In connection with one or more of his graduate courses, the student must submit a substantial paper which will be placed on file for faculty review.

5. *Written Comprehensive Examination:* This examination will serve as the written examination for the Ph.D. as well as for the M.A. It will consist of two parts. Part One will test the student for an educated general understanding of the substance of belief and attitude in western and non-western religions, an acquaintance with their basic scriptures and some significant commentaries upon them, studied in the context of modern scholarly analysis, and an awareness of strategic developments in religious thought. Part Two will be devoted to classical and contemporary theoretical approaches to the study of religion—phenomenological, sociological, historical, etc. This two-part examination will be based largely on significant works in these fields, a list of which will be distributed to the student early in his career. This examination may be repeated once. Upon successful completion of this comprehensive examination and the other requirements listed above the student will be recommended for the M.A. degree.

THE DEGREE OF DOCTOR OF PHILOSOPHY

1. *Admission:* (a) an M.A. degree in religious studies or its equivalent; (b) an acceptable level of performance on the Aptitude Test of the Graduate Record Examination and on the Miller Analogies Test. (See No. 1 under The Master of Arts Program, above.)

Upon admission the student will be assigned a doctoral adviser who normally will become the chairman of the student's doctoral committee.

2. *Foreign Language:* The student must demonstrate a reading proficiency in French and German. In the case of one of these languages, proficiency must be demonstrated in accordance with the timetable specified in No. 3 under The Master of Arts Program, above. Proficiency in the second language must be demonstrated before taking the oral qualifying examination. In selected fields proficiency in other languages may be required. Where deemed appropriate by the Department Graduate Adviser, another modern language may be substituted for French or German, if significantly related to the student's area of special study.

3. *Course Work:* The student is advised to see the statement of Residence Requirement under the general requirements for the Doctor of Philosophy degree listed in the Graduate Announcement.

The student must take the introductory seminar, Religious Studies 230. Other courses should be selected in preparation for the written comprehensive examination, the oral qualifying examination, and the dissertation. Courses may be taken in other departments where related to the student's needs and interests.

4. *Written Comprehensive Examination:* See No. 5 under The Master of Arts Program, above.

5. *Oral Qualifying Examination and Admission to Candidacy:* After passing the written comprehensive examination the student will be placed under the supervision of a doctoral committee which will be selected in consultation with the student's doctoral adviser and approved by the Graduate Council. The student shall present to this committee a dissertation proposal in which both the subject of his research as well as the specific field-discipline to which that research will be correlated are clearly set forth.

The student must pass an oral examination administered by his doctoral committee. This examination will be designed to evaluate his fundamental knowledge of his area of concentration and his understanding of the relevant basic methodological principles.

Upon successful completion of these steps the student will be admitted to candidacy for the Doctor of Philosophy degree.

6. *Doctoral Dissertation:* The candidate must write a dissertation under the supervision of the doctoral committee demonstrating his ability to do significant research and scholarly analysis and to present his findings and conclusions with precision and clarity. If the committee so recommends, the candidate must defend his dissertation in an oral examination. The dissertation normally must be completed within five years after passing the qualifying examination.

RELIGIOUS STUDIES

Lower Division Courses

30. Introduction to Religion. (4) I, II, III. The Staff

A survey of the historical development and cultural role of selected religious traditions.

40. Religion and Society. (4) I, II. Mrs. O'Dea, Mr. Michaelsen

The relationship of religious concepts and values to contemporary problems of individual behavior, political responsibility, and international order.

50. Problems in the History of Religious Thought. (4) III. Mr. Bradford

An examination of some of the perennial problems that have appeared in the religious traditions of both East and West, such as the problem of evil, the existence of God, the quest for ultimate meaning, the basis of moral judgment.

55. Introduction to Asian Religion. (4) I, III. Mr. Fridell

Survey of selected religious traditions of India, China and Japan, including a reading of certain basic texts.

60. Religion in Western Culture. (4) I. Mr. Capps, Mr. Fogarty

Representative figures, themes, schools, and issues in religion in the western world from the classical period to the present.

Upper Division Courses

100A. History of Western Religious Thought. (4) I. Mr. Capps

The formative period to the Reformation.

100B. History of Western Religious Thought. (4) II. Mr. Capps

The Reformation to the present.

103. Contemporary Trends in Religious Thought. (4) I, II, III. Mr. Capps, Mr. Comstock

A survey of the growth and development of twentieth century religious thought and its historical background. Course may be repeated up to eight units.

105. Religious Myth and Language. (4) II. Mr. Comstock

Prerequisite: Open to Upper Division students only or consent of instructor.

A survey of contemporary studies into the nature and function of religious symbol and language.

115. Literature and Religion of the Hebrew Bible (4) I. Mr. Pearson, Mr. Knutson

Introduction to the varieties of literature, traditions and institutions of ancient Israel through the prophetic period.

116. Christian Beginnings. (4) II. Mr. Pearson

Study of the varieties of early Christian traditions and literature of the first century, with special (but not exclusive) attention to the New Testament.

117. The Prophets. (4) II. Mrs. O'Dea

The origins, development and enduring significance of the prophetic movement in ancient Israel.

119. Israel's Religion and the Ancient Near East. (4) III. Mr. Knutson

Prerequisite: Religious Studies 115.

A study of the religion of ancient Israel against the background of ancient Near Eastern religions.

121. Augustine. (4) II. Mr. Capps

Reading and discussion of Augustine's writings with special attention to his influence upon western thought and culture.

122. Luther and Scholasticism. (4) II. Mr. Capps

A comparative examination of medieval orthodoxy and early Reformation thought, with special attention to contemporary Roman Catholic-Protestant discussion.

124. Religious Implications of the Enlightenment. (4) III. Mr. Capps

Study of the critical assessment of religion in the Age of Reason with specific reference to Kant's writings and to dominant nineteenth century European and American reactions.

125. Roman Catholicism: Its Structure and History. (4) I. Mr. O'Dea

An analysis of the liturgy, beliefs and organization of the Catholic Church and a consideration of the chief historical events that have influenced their development.

126. Roman Catholicism in Modern Times. (4) II. Mr. O'Dea

Prerequisite: Religious Studies 125.

An analysis of the structure and functioning of the Roman Catholic Church, seen in the context of its historical situation. Contemporary situations and problems will be given emphasis but relevant background from the post-Tridentine period and especially the last century and a half will be considered.

130. Judaism. (4) I. Mrs. O'Dea

A study of basic structures and motifs (e.g., the Law, the Festivals, the Holy Land) within the history of post-Biblical Judaism.

131. Palestinian Judaism from Ezra to Akiba. (4) I. Mr. Pearson

Study of the various religious trends in Palestine from the time of Ezra to the second revolt, with special attention to the rise and development of apocalyptic.

132. Judaism in the Graeco-Roman World. (4) II. Mr. Pearson

A study of the cultural and religious interactions of Judaism with Hellenism.

134. Hellenistic Religions. (4) I. Mr. Pearson

A study of the various religious phenomena of the Graeco-Roman world (ruler cults, savior-deities, mystery religions, religious dimensions of philosophy, theosophy, gnosticism, astrology, magic, etc.). Emphasis is placed on study of the ancient sources.

135. Second-century Christianity (4) III. Mr. Pearson

Study of the various religious trends in developing Christianity as represented in the writings of the early Fathers, the later books of the New Testament, the New Testament apocrypha, and "heretical" movements.

136. Judaism in Modern Times. (4) III. Mrs. O'Dea

Challenge of the Enlightenment and Emancipation movements to traditional Jewish life in Western and Eastern Europe. Religious and secular responses to these challenges (Orthodox, Conservative, Reform, Zionism, Socialism) in Europe and the United States.

139. The New Testament in Greek (4) II. Mr. Pearson

Prerequisites: Greek 104 (or 105) and 106 or permission of instructor.

Reading in the Greek New Testament, with comparative study of related materials from Greek literature of the Hellenistic-Roman period (same as Greek 139).

140. Islam. (4) II. Mr. Wendell

Origins of Islam in 7th century Arabia and the life of the Prophet Muhammad; text and message of the Koran, and the fundamentals of Orthodox Sunnite belief and practice.

141. Islamic Sects and Mystical Movements. (4) III. Mr. Wendell

The major sectarian (heterodox) divisions within Islam, *e.g.*, the Kharijites, and the Shi'a and its offshoots, and the cultural and historical conditions under which they arose; the mystical movement and its embodiment in the Sufi orders.

151A. Religion in American History (4) I. Mr. Michaelsen

Principal figures, groups, trends and issues in religion in America to 1865.

151B. Religion in American History (4) II. Mr. Michaelsen

Principal figures, groups, trends and issues in religion in America since 1865.

152. Religion in America Today (4) III. Mr. Michaelsen

Recent trends in American religion and in interrelationships between religion and American society.

156. Sociology of Religion. (4) I, III. Mr. O'Dea

Religion as a social phenomenon; religious influence on the structure and dynamics of society; comparison of various approaches to the study of religion. Same as Sociology 156.

158. Patterns in Comparative Religion. (4) II. Mr. Vereno

159A. Religious Literature in Sanskrit. (4) I. Mr. Larson

An introduction to the phonology, morphology and syntax of classical Sanskrit.

159B. Religious Literature in Sanskrit. (4) II. Mr. Larson

Prerequisite: Religious Studies 159A.

Readings from the *Māhābhārata, Hitopadésa* and *Bhagavad Gītā.*

159C. Religious Literature in Sanskrit. (4) III. Mr. Larson

Prerequisite: Religious Studies 159A, 159B.

Readings from the *Māhābhārata, Hitopadésa* and *Bhagavad Gītā.*

159D. Religious Literature in Sanskrit II. (4) I. Mr. Larson

Prerequisite: Religious Studies 159–A–B–C or equivalent.

Reading and analysis of classical Sanskrit religious texts: Bhagavad Gītā, Sāmkhyakārikā, Yugasūtra, etc., together with relevant commentaries.

159E. Religious Literature in Sanskrit II. (4) II. Mr. Larson

Prerequisite: Religious Studies 159–A–B–C or equivalent.

Reading and analysis of classical Sanskrit religious texts: Bhagavad Gītā, Sāmkhyakārikā, Yugasūtra, etc., together with relevant commentaries.

159F. Religious Literature in Sanskrit II. (4) III. Mr. Larson

Prerequisite: Religious Studies 159–A–B–C or equivalent.

Reading and analysis of classical Sanskrit religious texts: Bhagavad Gītā, Sāmkhyakārikā, Yugasūtra, etc., together with relevant commentaries.

160. Religious Systems of India. (4) II. Mr. Larson

Analysis of Vedic-Upanisadic-Epic traditions; Jainism and Indian Buddhism; six orthodox systems; Vaisnavism, Saivism and the Hindu Tantra.

161. Yoga Traditions of India. (4) II. Mr. Larson

Religio-historical analysis of classical Sāmkhya and Yoga, Jain and Buddhist Yoga, and Tantric Yoga. Study of the role and function of meditation in Indian religion.

162. Seminar on Shankara and Nāgārjuna. (4) III. Mr. Larson

Prerequisite: Religious Studies 160 or 161 or consent of instructor.

Historical, thematic and comparative analyses of Advaita Vedānta and Mādhyamika Buddhism.

163. Problems in Comparative Mysticism. (4) III. Mr. Larson

Historical and descriptive analysis of selected mystical traditions in South and East Asia, the Middle East, and Europe; and the study of selected key figures—e.g., Chuang Tzu, Sankara, Plotinus, St. John of the Cross, etc.

164A. The Buddhist Tradition. (4) I. Mr. Larson

Origin and development of Buddhist tradition in India and South Asia.

164B. The Buddhist Tradition. (4) II. Mr. Fridell

Prerequisite: Background in Indian Buddhism, or consent of instructor.

Evolution of the Buddhist tradition in China and Japan.

166. Religion in Chinese Culture. (4) II. Mr. Fridell

Emphasis on Confucian, Taoist and Buddhist traditions to the present day.

167A. Religion in Japanese Culture. (4) I. Mr. Fridell

Prerequisite: Religious Studies 167A; Background in Buddhism, or consent of instructor.

Pre-history to 1600. The development of Shinto, and Japanese forms of Confucianism, Taoism and Buddhism. Emphasis on medieval Buddhist sects: Pure Land, Zen, Nichiren.

167B. Religion in Japanese Culture. (4) II. Mr. Fridell

1600–present day. Emphasis on religion and sacred values of the last century, especially prewar "familyism" and State Shinto, the "new religions" and the overall postwar scene.

170. Religion and the Humanities. (4) II. Mr. Comstock

An examination of the relationship between religion and the humanistic disciplines with special emphasis on views of the nature of man.

171. Religion and Literature. (4) III. Mr. Comstock

An examination of religious themes as they are expressed in significant works of world literature. The nature of man, the problem of suffering, the quest for meaning, are among the topics considered through writings of Dostoevsky, Camus and others.

172. Religion and Science. (4) I. Mr. Comstock

Prerequisite: Upper Division students only or consent of instructor.

The impact of Western science on religion; the implication for religion of contemporary discussions of meaning, truth, and verification.

174. Religious Thought and Existentialism. (4) III. Mr. Comstock

Prerequisite: Open to Upper Division students only or consent of instructor.

An examination of the Nineteenth and Twentieth Century literary and philosophical movement of existentialism and its implications for philosophy of religion and theology. Typical figures like Kierkegaard, Sartre, Camus, Buber are examined.

175. Pragmatism, Empiricism and Religion. (4) I. Mr. Comstock

Prerequisite: Open to Upper Division students only or consent of instructor.

A survey of important religious positions that have been based on an experiential and pragmatic orientation. Representative thinkers like W. James, J. Royce, G. Santayana, J. Dewey and A. N. Whitehead are examined.

176. Religion and Modern Ideologies. (4) II. Mr. Michaelsen, Mr. Vereno

The conflicts and accommodations between the historic religious systems—Hinduism, Buddhism, Judaism, Christianity, and Islam—and modern nationalism, communism, and fascism.

177. The Religious Personality. (4) II. Mr. Capps

Study of the cultural influence and personal characteristics of religious men as reflected in their diaries, journals, and autobiographical writings.

181. The Theology of Paul Tillich. (4) II. Mr. Comstock

185. Problems in Biblical Interpretation. (4) III. Mr. Pearson

Discussion of central problems of Biblical interpretation bearing directly on current concerns.

187. Major Issues in Medieval Theology. (4) III. Mr. Capps

194A–B. Group Studies in Religious Thought. (1–5) I, II, III. The Staff

197. Senior Seminar. (2–4) II, III. The Staff
Prerequisite: Senior standing.
An undergraduate seminar limited to senior religious studies majors. Concentration on method and selected topics in the scholarly study of religion. Four units required.

199. Independent Studies in Religion. (1–5) I, II, III. The Staff
199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

220. Scholarly Approaches to Religion. (4) I. Mr. Capps
Cross-disciplinary analysis of religious thought, experience, and behavior.

230. Seminar in the History and Theory of Religion. (4) I, II. Mr. O'Dea, and Staff
Scholarly perspectives and disciplinary approaches to critical study and research in the history and theory of religion.

235. Seminar in Western Religious Thought. (4) Mr. Capps
Historical and critical examination of selected figures and movements.

238. Seminar in Modern Religious Thought. (4) Mr. Comstock
Detailed examination of the intellectual structures of major nineteenth and twentieth century representatives of Western religious thought. Emphasis on methodologies and systematic form of basic positions.

240. Seminar in the Sociology of Religion. (4) Mr. O'Dea
Detailed examination of major figures, schools and types of research.

242. Seminar in Theories of Religious Behavior. (4) Mr. O'Dea
An advanced exploration of the significant sociological, psychological, etc., theories to explain religious behavior.

250. Seminar in the History of Religions (Western). (4) Mr. Comstock
An intensive study of basic religious structures or symbols (e.g., patterns of initiation, ascension rituals, myths of primordial man). Material will be drawn from the traditions of Judaism, Christianity, Gnosticism, Greco-Roman religions and Mediterranean cults.

251. Seminar in Hellenistic Religions. (4) III. Mr. Pearson
Historical and critical examination of selected figures, texts, and phenomena pertaining to Graeco-Roman religion. Reading knowledge of Greek required.

252. Seminar in Christian Origins. (4) III. Mr. Pearson
Historical and critical examination of selected figures, ideas, and movements pertaining to nascent Christianity.

253. History of Japanese Religion. (4) III. Mr. Fridell
Bibliographical study of western language materials on Japanese religion; and individual research on a selected topic.

258. Seminar in Religion in America. (4) Mr. Michaelsen
Intensive study of major figures and significant movements in the context of American culture.

265. Seminar in Formative Factors in Theology. (4) Mr. Capps
A methodological and historical examination of the procedures by which theology has been composed and the disciplines which it comprises, with special reference to such classical treatises as Peter Lombard's SENTENCES and Thomas Aquinas' SUMMA THEOLOGICA and to such contemporary works as Rahner's THEOLOGICAL INVESTIGATIONS and Tillich's SYSTEMATIC THEOLOGY.

270. Seminar in Religious Myth and Symbol. (4) I. Mr. Comstock
A detailed survey of important approaches to religious myth and symbolism. The various methods of literary analysis and anthropological and sociological study, linguistic analysis and the phenomenology of religion, will be considered.

594AA–ZZ. Special Topics. (2–4) I, II, III. The Staff
Special seminar on research subjects of current interest.

595AA–ZZ. Group Studies. (4) I, II, III. The Staff
Critical review of research in selected fields.

596AA–ZZ. Directed Reading and Research. (2–5) I, II, III. The Staff
Research and Preparation of Dissertation.

598AA–ZZ. Master's Thesis Research and Preparation. (2–5) I, II, III. The Staff
For research underlying the thesis, writing the thesis.

599AA–ZZ. Ph.D. Dissertation Preparation. (2–6) I, II, III. The Staff
Terminal preparation of the dissertation.

RUSSIAN AREA STUDIES

Committee in Charge

Dimitrije Djordjevic, *Professor of History.*
Donald B. Johnson, *Assistant Professor of Russian* (*Chairman*).
Stanley D. Krebs, *Associate Professor of Music.*
Leo C. Moody, *Assistant Professor of Russian.*

THE MAJOR

The major in Russian Area Studies is an interdepartmental major which can be taken by a student only in conjunction with another departmental major (at this point: economics, history, political science and Russian). The major aims at the provision of a broad interdisciplinary background designed to enrich the student's professional training provided by a department. It is intended to serve the needs of the student who wishes to pursue further graduate study or who desires to obtain a general education with a greater emphasis on an important world area.

Preparation for the Major

Forty units are required in the lower division: Russian 1, 2, 3, 4, 5, 6 (or equivalent), and History 4A–B–C. Recommended: Political Science 45.

Requirements for the Major

Forty-one units are required in upper division courses including: Economics 117, History 135A–B–C, Political Science 128, 143, and Russian 115A–B, 125. Select at least five units from the following electives: Anthropology 146, Economics 107, Geography 155, History 134 A–B, 136A–B–C, Music 113, and Russian 132, 140, 104A–B–C.

The student must show proficiency in Russian equivalent to completion of Russian 101C. The requirement may be satisfied either by completion of that course with a grade C or better or by examination.

The program, of course, is to be made out by each student in cooperation with one of the members of the Committee who would normally serve in the department of the student's allied major.

SOCIAL SCIENCES

Committee in Charge

John M. Foley, Ph.D., *Associate Professor of Psychology.*
Michael R. Gordon, Ph.D., *Assistant Professor of Political Science (Chairman of the Committee).*
James Keyser, Ph.D., *Assistant Professor of Anthropology.*
Leonard Marsak, Ph.D., *Professor of History.*
John A. Sonquist, Ph.D., *Associate Professor of Sociology.*
Thomas P. Wilson, Ph.D., *Assistant Professor of Sociology.*

Majors in the following fields of the social sciences are available: anthropology, economics, geography, history, political science, and sociology. Students with interests in the individual fields are advised to study the separate descriptions in this bulletin and to consult the chairman of the appropriate department.

Anthropology, Departmental Office, NH 2051
Economics, Departmental Office, NH 3045
Geography, Departmental Office, ELLSN 3611
History, Departmental Office, ELLSN 4834
Political Science, Departmental Office, ELLSN 3834
Sociology, Departmental Office, NH 3045

Combination Social Sciences Major

A student who wishes to major in Combination Social Sciences *must* indicate a field of emphasis (anthropology, economics, geography, history, philosophy, political science, or sociology). An adviser will be assigned to each student by the department of emphasis.

The Combination Social Sciences major is not recommended for students who expect to work for a master's degree or for a doctorate.

Preparation for the Major

All students must complete History 4A–B–C and two complete sequences from the following list: Anthropology 2 and 3, Economics 1 and 2, Philosophy 20A–B–C, Political Science 5, 10 or 12 and 45, Sociology 1 and 2, Geography 2 and 6. Thus, a total of 27–34 units in lower division is required in preparation for the major. The courses taken here in preparation for the Combination Social Sciences major may also, in certain cases, be used in fulfillment of the general education program, as listed in this bulletin.

The Major

Required: 39–41 units of upper division work, including 23 units in the subject field of greatest emphasis, and 8–9 units in each of two other subject fields in the social sciences, as listed above. While philosophy is not classed as a social science, it does qualify as one of the areas of emphasis in the Combination Social Sciences major. However, inclusion of philosophy as a social science subject not acceptable by the State Department of Education for a major in Social Sciences for the teaching credential. The following courses are not acceptable for upper division credit in the major: Anthropology 101, Economics 109, Political Science 100, and Sociology 101.

Teaching Credentials

A major in Combination Social Sciences may serve as an appropriate part of the program of studies required for an elementary secondary teaching credential in California. A student wishing to secure any of these credentials should confer with designated counselors in the department of emphasis and in the Graduate School of Education.

SOCIOLOGY

Donald R. Cressey, Ph.D., *Professor of Sociology.*
David Gold, Ph.D., *Professor of Sociology.*
Sethard Fisher, Ph.D., *Professor of Sociology.*
Thomas F. O'Dea, Ph.D., *Professor of Sociology and Religious Studies.*
Thomas J. Scheff, Ph.D., *Professor of Sociology (Chairman of the Department).*
Tamotsu Shibutani, Ph.D., *Professor of Sociology.*
Charles B. Spaulding, Ph.D., *Professor of Sociology.*
Robert H. Billigmeier, Ph.D., *Associate Professor of Sociology.*
William J. Chambliss, Ph.D., *Associate Professor of Sociology.*
Morris F. Friedell, Ph.D., *Associate Professor of Sociology.*
Richard Flacks, Ph.D., *Associate Professor of Sociology.*
John A. Sonquist, Ph.D., *Associate Professor of Sociology.*
[4]Thomas P. Wilson, Ph.D., *Associate Professor of Sociology.*
John D. Baldwin, Ph.D., *Assistant Professor of Sociology.*
[4]Milton L. Mankoff, Ph.D., *Assistant Professor of Sociology.*
[4]Harvey L. Molotch, Ph.D., *Assistant Professor of Sociology.*
Gary I. Schulman, Ph.D., *Assistant Professor of Sociology.*
Robert B. Smith, Ph.D., *Assistant Professor of Sociology.*
Bruce C. Straits, Ph.D., *Assistant Professor of Sociology.*
Ellen Kay Trimberger, Ph.D., *Visiting Assistant Professor of Sociology.*
[1, 2]D. Lawrence Wieder, Ph.D., *Assistant Professor of Sociology.*
[1, 2]Daniel H. Willick, Ph.D., *Assistant Professor of Sociology.*
Paul L. Wuebben, Ph.D., *Assistant Professor of Sociology.*
Don H. Zimmerman, Ph.D., *Assistant Professor of Sociology.*

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Richard P. Appelbaum, M.A., *Acting Assistant Professor of Sociology.*
Reyes Ramos, B.M.E., *Acting Assistant Professor of Sociology.*
Albert Adato, B.A., *Lecturer in Sociology.*
Lloyd Fitts, M.A., *Lecturer in Sociology.*
Bettina J. Huber, M.Phil., *Lecturer in Sociology.*
Homero E. Yearwood, M.R.E., *Lecturer in Sociology.*

The Major

The sociology major is designed to provide (1) preprofessional training for students who intend to do graduate work in sociology, (2) preparation for those planning careers in education or social work, or (3) a broad background in the social sciences for those interested in a liberal education. The courses to be taken will vary with the particular interests of each student.

Preparation for the Major

Required courses: (1) Sociology 1, 2 (Sociology 101 may be substituted for Sociology 1); (2) Sociology 43 and 44; (3) one of the following sequences: (a) Anthropology 2 and one additional course in Anthropology (except physical), (b) Economics 1, 2 (c) History 4A–B–C, (d) Political Science 5, 10 and 45, (e) Psychology 1 and one upper division Psychology course. Courses taken in preparation for the major may be used to satisfy the appropriate General Education Requirements.

Requirements for the Major

NOTE: To qualify as an upper division Sociology major, students *must have completed* Sociology 1 (or 101), 2, 43 and 44, or equivalents.

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[1] Absent on leave, Fall 1971.
[2] Absent on leave, Winter 1972.
[4] Absent on leave, 1971–1972.

Required: 36 units of upper division Sociology courses, including (1) Sociology 185; (2) one of the following: Sociology 122, Sociology 130, Sociology 167, Sociology 170. In certain cases the major adviser may approve a maximum of 9 units of upper division work in closely allied fields as part of the required total of 36 units. Sociology 150 will not count towards the major.

Recommended: Students intending to engage in graduate study in Sociology are urged to take Mathematics 30A (for more intensive preparation Mathematics 8–9 and 108A–B); Philosophy 20B–C; Sociology 103 and 104A–B.

The Minor

A minor consists of at least 30 units in Sociology, including Sociology 1 and 2, and at least 14 units in upper division courses.

THE DEGREE OF MASTER OF ARTS

The M.A. program in sociology is oriented toward the Ph.D. program and is viewed as an integral part of preparation for the doctorate. Students should normally apply for admission to both programs. Prospective applicants should inquire early in the academic year concerning deadlines for submission of applications for admission and financial support. Address inquiries to The Graduate Division, University of California, Santa Barbara, California 93106.

Admission: In addition to the information required in the application for admission to graduate status in the University, the applicant should submit his scores on the verbal and quantitative aptitude tests of the Graduate Record Examination.

Applicants are expected to have training substantially equivalent to the undergraduate major in this department, including research methods, statistics, and the development of sociological theory. Students with inadequate backgrounds in these areas may be admitted but are expected to make up serious deficiencies as early as possible in their first year.

Departmental Requirements

The M.A. degree is awarded according to Plan II of the University: 36 units of course work, of which at least 18 are graduate units, and a Comprehensive Examination.

Prior to the Comprehensive Examination, the student must submit a short research paper (not a thesis), prepared under the supervision of an Advisory Committee of three faculty members, and have satisfied his Advisory Committee's recommendations concerning the breadth and intensiveness of his preparation in sociology, including theory, research methods, and formal analysis techniques (usually statistics, mathematics, modern logic, or linguistics). Required course work must be completed by the end of the quarter in which the examination is taken.

To receive the M.A. degree, the student must receive a "pass" or higher grade on an oral Comprehensive Examination. To continue in the Ph.D. program, a student must receive a "high pass" or an "honors pass." The M.A. program should normally be completed by the end of the second year, but a student may petition for an extension.

THE DEGREE OF DOCTOR OF PHILOSOPHY

Admission: All candidates are expected to have substantially equivalent training as required for the B.A. in this department—36 units of upper division work in sociology, including courses in research methods, statistics, and the development of sociological theory. In addition to fulfilling the general requirements for admission to graduate status, the student must submit his scores on the verbal and quantitative aptitude tests of the Graduate Record Examination.

Departmental Requirements:

(a) To be admitted to the Ph.D. program, the student must satisfy the departmental requirements for the M.A., or the equivalent as determined by the department. Students may be admitted to graduate study in the department without admission to the Ph.D. program pending completion of these requirements; however, these must be completed by the end of the second year.

(b) Demonstration of competence in research methods appropriate to the student's area of major specialization. This requirement may be met by: (1) passing, with a grade of B or higher, one of Sociology 201A, B, or C, or an approved alternative course (e.g., linguistics, computer programming), together with (2) approval by one faculty member of a research paper typically initiated in Sociology 201 and completed in a subsequent quarter of Sociology 596; alternatively, this requirement may be met by an M.A. research paper demonstrating appropriate research competence.

(c) Teaching competence must be demonstrated by service as a teaching assistant in the department for three quarters, or the equivalent.

(d) No language is required, but a student whose specialty requires knowledge of foreign languages will be required to demonstrate his competence.

(e) The student must pass a written preliminary examination in two areas of specialization. In consultation with his examination committee, the student will prepare a bibliography in the areas he selects and submit it to the committee for approval. The preliminary examination will be based on these approved bibliographies.

(f) Following the preliminary examination, the student must pass a qualifying oral examination, administered by a committee appointed by the Graduate Council, normally focusing upon his major area of specialization and particularly on his proposed research.

(g) The preliminary examination normally must be taken within 18 months after admission to the Ph.D. program. Under special circumstances, a student may petition for an extension.

(h) The candidate must complete a doctoral dissertation. Normally, he will be called upon for an oral defense of his dissertation.

TEACHING CREDENTIALS

Either a major or a minor in sociology may serve as an appropriate part of the program of studies required for an elementary, secondary, or junior college teaching credential in California. Detailed information is given in *The Graduate School of Education Announcement.*

SOCIOLOGY

Lower Division Courses

1. Social Organization. (4) I, II, III. The Staff
The systematic study of human society; the structure of social groups, institutions, and societies, and their relationships to cultural patterns.

2. Society and Personal Growth. (4) I, II, III. The Staff
Prerequisite: Sociology 1, or consent of instructor.
The introduction of the individual into group life; the organization and perspectives of personality; the social control of conduct.

43. Introduction to Social Research. (4) I, II, III. The Staff
Prerequisites: One course in sociology, anthropology, or political science, or consent of the instructor.
Assumptions underlying scientific research. Science and values. Relations of theory to research. Elements of field-work, survey, and experimental methods.

44. Elementary Statistics. (4) I, II, III. The Staff
Prerequisite: Sociology 43.
Techniques for describing and analyzing quantitative data. Tabular and graphic presentation; commonly used measures of association; samples and sampling error; commonly used statistical tests.

45. American Society. (4) I, II, III. The Staff
Contemporary issues in American society from a sociological perspective.

48. Social Problems. (4) I, III. The Staff
This course will analyze the sources of social problems in modern industrial societies. We will discuss in survey form the sociological studies and theoretical propositions dealing with such things as crime, mental illness, war, urban problems, and problems of inter-nation relations.

Upper Division Courses

Prerequisite to upper division courses: Sociology 1, or Sociology 101, or consent of instructor.

101. General Sociology. (4) I, II, III. The Staff
The major concepts, principles, and problems of sociology. Not open to those who have had Sociology 1. May serve as prerequisite for upper division courses.

102. Sociology, The University and Society. (4) I, II, III. The Staff

There will be three main topics: Society, the University, and the Discipline. Some of the sub-topics: Social and Personal Responsibility, the University and Social Change, Departmentalization of Knowledge, Decision-Making in the University, Clientele of University, Concept of Academic Freedom, Student Power, Ethnic and Other Minorities, Organization of Profession of Sociology, and Professional vs. Liberal Education.

103. Methods of Sociological Research. (4) I. The Staff

Prerequisite: Sociology 43 and 44 or equivalent.

Fundamentals of designing, conducting, and analyzing social surveys. While the main focus is on survey techniques, problems of design and interpretation in experimental and observational studies are touched upon in terms of similarities and contrasts.

104A–B. Intermediate Statistics. (4–4) I–II. Mr. Straits

Prerequisite: Sociology 43 and 44 or equivalent.

Non-parametric statistical inference, point and interval estimation, multiple regression and path analysis, and analysis of variance in experimental designs.

105. Laboratory in Group Research. (4) II. Mr. Wuebben

Prerequisite: Sociology 103 and 143, or consent of instructor.

Practicum in laboratory methods of research in the behavior of small groups.

106. Simulated Behavioral Processes. (4) III. Mr. Baldwin

Prerequisite: Consent of the instructor.

Applications of Simulation and Gaming Methodologies in the Analysis of Social and Political Processes. This course is the same as Political Science 106.

107. Demographic Analysis. (4) II. Mr. Straits

Prerequisite: Sociology 123, or consent of instructor.

Analysis of published demographic research with special reference to the accuracy of data from censuses and other sources; standardization and other methods for controlling differences in population composition; computation and use of rates and indexes, population estimates and projections.

108. Introduction to Mathematical Sociology. (4) III. The Staff

Prerequisite: Mathematics 30 and any two upper division courses in sociology, or the consent of the instructor.

Analysis of social systems through the use of mathematical tools; survey of structural, quantitative, and stochastic models.

109A–B. Computer Applications in Sociology. (4) I, II. Mr. Sonquist

Prerequisite: Sociology 103 or consent of instructor. Recommended: Sociology 104.

Computer analysis of social structures and processes. Applications of higher level programming systems to sociological problems, including simulation, content analysis, and transitional analysis.

110. Data Processing and Analysis. (4) II, III. The Staff

Prerequisites: Sociology 43 and Sociology 44.

Course will focus on basic principles of data organization and statistical analysis employing computer based research techniques. Students will learn how to utilize available user-oriented statistical programs as an integral part of the research process.

120. The Community. (4) I, III. The Staff

Prerequisite: Consent of instructor. Recommended: Economics 1A–1B or Economics 109.

Structure and dynamics of the local community. Comparative and historical analysis of rural, urban, and suburban communities and neighborhoods. Study of organizations, power structure, status groupings, communication processes, socialization, factional conflict, social control, ecology, equilibrium, and change.

122. Social Stratification. (4) II, III. Mr. Zimmerman

Prerequisites: Sociology 1, 2, 43 and 44.

The nature of social classes and class relations, emphasizing contemporary studies of American society.

123. Population. (4) I, II. Mr. Billigmeier, Mr. Straits

Population composition and change; differential fertility and mortality of sociocultural groups; internal and international migration; population theory and national policies; problems in areas of population pressure.

126. Urban Society. (4) II, III. Mr. Molotch, Mr. Straits

The social systems of modern urban society.

127. Sociology of Urban Planning and Design. (4) III. Mr. Molotch

Prerequisite: Sociology 126 or consent of instructor.

Survey of sociological implications of city planning and urban design processes.

128. Inter-Ethnic Relations. (4) I, II, III. Mr. Billigmeier

Patterns of racial and ethnic relations, with particular emphasis upon minorities in the United States.

129. Sociology of International Politics. (4) III. Mr. Willick

Domestic social factors and national foreign policy; relation of public attitudes to foreign policy and the place of public opinion in the process of foreign policy formulation; effect of the international situation on domestic structure of society.

130. Social Change. (4) II. The Staff

Prerequisites: Sociology 1, 2, 43 and 44.

Theories of social change and of the evolution of social systems.

131. Political Sociology. (4) I, III. Mr. Willick

Social and cultural bases of the political process; the study of power and authority as reflecting the interplay of interests and values; analysis of continuities and discontinuities in the democratic political system.

132. Public Opinion. (4) II. Mr. Gold

Conceptual analysis of public opinion in relation to notions of democratic behavior and social change. Problems of measurement. Influence of the mass media, reference groups, and interpersonal relations. Effect upon contemporary American society.

133. Sociology of Mass Communications. (4) III. Mr. Gold

Organization and processes of mass communications in American society and developing nations; effects of the mass media on social consensus, conflict and innovation.

134. Social Movements. (4) I, III. Mr. Billigmeier

Developmental processes of movements seeking alterations in the social order; a comparative analysis of utopias, classical and contemporary liberalism, socialism, and communism.

135. Sociology of Knowledge. (4) II. The Staff

The creation, diffusion, and social influence of knowledge; thought forms and symbols as consensus-making devices; the social role of the intellectual.

136. Sociological Linguistics. (4) II. Mr. Zimmerman

Relevance of linguistic methods for the sociological analysis of communication. Special emphasis on naturally occurring conversations and on possible relations between variant cultural backgrounds and linguistic patterns.

137. Sociology of Black Nationalism. (4) I, III. Mr. Yearwood

Analysis of the historical and sociological sources of Black Nationalism with special emphasis on the implications of Black Nationalism for radical social change.

138. The Sociology of Conflict. (4) I, III. Mr. Baldwin

Conflict as a basic and continuous social process; relationships to social change and social organization; modes of resolving differcnces.

140. Animal Social Behavior. (4) III. Mr. Baldwin

Evolution of social behavior and social organization, with special attention to primates and conditions relevant to evolution of man.

141. Interpersonal Relations. (4) I, II. Mr. Schulman, Mr. Wuebben, Mr. Scheff

Prerequisite: Sociology 2 or Psychology 145, their equivalent, or consent of instructor.

The social psychology of person-to-person interaction: perceptions, norms, and sentiments that develop in face-to-face contact.

142. Socialization. (4) I. Mr. Baldwin

The learning of culture by children: analysis of children's games, of speech, and of child-parent interaction.

143. Small Groups. (4) I. The Staff

Prerequisite: Sociology 2, Psychology 1 or 101, Sociology 141 or Psychology 102; or consent of instructor.

The structure and dynamics of small groups, including the analysis of roles, interpersonal relations, and group characteristics; intergroup relations; field and laboratory research on small groups.

144. The Chicano Community. (4) II. Mr. Ramos

Origins of the Mexican-American immigrant in rural Mexico; context of contact; patterns of settlement in the United States; the Mexican community; social structure and social change; acculturation and generational patterns; community leadership and change.

145. Advanced Topics in Socialization (4) II. Mr. Baldwin

Prerequisite: Sociology 142.

The social development of individuals after the early childhood years. Data and theories will be presented relating to the development of the more complex social behaviors, cognitions, plans, etc. typical of socialized adults.

147. Current Issues in Social Psychology. (4) III. The Staff

Prerequisite: Sociology 2 and 103, their equivalents, or consent of instructor.

An advanced course dealing with topics selected by the lecturer. Emphasis is on areas of research in social psychology, such as the decision-making process, role analysis, and other current topics.

148. Analysis of Social Systems. (4) I, II, III. The Staff

This course is designed to give an extensive and fundamental approach to understanding the properties, function, and interactive processes of a social system.

150. Principles of Social Welfare. (4) II. The Staff

Basic concepts and methods of social work; the application of casework techniques; structure and function of public welfare agencies; social group work and community organizations. This course will not count towards the major.

154. Marriage and the Family. (4) I, II, III. Mr. Spaulding

The human family, past and present; adjustment in the contemporary American family.

155. Women in American Society. (4) II. The Staff

Prerequisite: Upper Division standing.

The roles and life styles of women in various American subcultures and the ideologies developing around them.

156. Sociology of Religion. (4) I, III. Mr. O'Dea

Religion as a social phenomenon; religious influence on the structure and dynamics of society; comparison of various approaches to the study of religion.

159. Occupations and Professions in Modern Society. (4) II. The Staff

A sociological analysis of the character and function of various occupations and professions in contemporary society. Emphasis is placed upon current sociological theory and research in this area of sociological inquiry.

160. Industrial Sociology. (4) II. Mr. Spaulding

Management and worker organizations, formal and informal. Accommodation among these organizations, and interaction between them and the community.

162. Sociology of the Arts. (4) II. The Staff

Art forms as media of communication and symbolic interaction; the influence of social structure and social change on the work of artists; the impact of art on social life.

163. Comparative Social Institutions: Leisure. (4) I. The Staff

Social function of leisure, its dependences on social system. Formation of leisure and institutions of leisure in East and West Europe and U.S.A. Leisure as indicator of others' properties of society. Research in leisure.

164. Sociology of Education. (4) II, III. The Staff

Changing character of education in complex societies, its relation to political, economic and technological institutions, and its effect on individual and community behavior and development.

165. The Sociology of Medicine. (4) II. Mr. Scheff

Survey of theory and research concerns: social factors determining health and illness, practitioner-patient relationships, and the organization of medical care.

167. Complex Organizations. (4) I. Mr. Willick

Prerequisites: Sociology 1, 2, 43 and 44.

Institutional analysis of administrative structures and voluntary associations: informal organization, ideology, bureaucracy, decision-making, and morale.

170. Sociology of Deviant Behavior. (4) I. Mr. Mankoff, Mr. Scheff

Prerequisites: Sociology 1, 2, 43 and 44.

Introduction to the sociological study of conformity and deviance, with emphasis on processes of social control.

171. Sociology of Mental Illness. (4) III. Mr. Mankoff, Mr. Scheff

Prerequisite: Sociology 170. Recommended: Behavior Pathology (Psychology 125).

Sociological analysis of mental disorder: the cultural context of health and illness, social processes in the definition, recognition and treatment of mental illness.

172. Sociology of Crime and Delinquency. (4) I. Mr. Cressey

Theories of the genesis of delinquency and crime; factors in the organization of delinquent and criminal behavior from the points of view of the person and group; delinquent and criminal behavior systems.

173. Sociology of Law. (4) I, III. Mr. Chambliss

Study of the social and cultural factors underlying the development, maintenance and change of legal structures and processes, and analysis of theories of jurisprudence.

174. Criminal Justice and the Community. (4) II. Mr. Yearwood

Prerequisite: Sociology 1.

Sociological analysis of law-enforcement systems and court systems; police discretion, differential implementation of the criminal law; negotiation in criminal justice decisions.

175. Sociology of Punishments and Corrections. (4) III. Mr. Cressey, Mr. Weider

Theories of punishment and treatment used in dealing with convicts and juvenile delinquents; analysis of the systems of behavior modification used by probation, prison and parole workers.

185. Development of Sociological Thought. (4) I, III. Mr. Zimmerman

Prerequisites: Sociology 1, 2, 43 and 44.

The outstanding European and American figures and idea systems in the development of sociological thought.

190A–B. Workshop in Organizational Studies (4) I, II. Mr. Willick

Prerequisite: Consent of instructor.

Both the methods of study and key theoretical issues in organizational studies will be focused upon. Students will engage in first-hand observation of some organization and write a paper based on their experience.

194. Group Studies for Advanced Students. (2–5) I, II, III. The Staff

Intensive study and research. This course may be taken for no more than three quarters and for a maximum of 5 units each quarter.

195 A–B–C. Tutorial in the Fundamentals of Sociology. (4–4–4) I, II, III. The Staff

Prerequisite: Consent of instructor.

Intensive directed reading and writing assignments in basic sociology. Topics covered include socialization, interaction processes, social organization, and major social institutions.

198. Readings in Sociology. (2–4) I, II, III. The Staff

This course may be taken for no more than three quarters and for a maximum of four units each quarter.

199. Independent Studies in Sociology. (1–5) I, II, III. The Staff

199 Courses are limited to no more than 5 units in one quarter and no more than 12 units total. The student must have 125 units of work completed.

Graduate Courses

200A–B. Sociological Theory. (4–4) II–III. The Staff

The first quarter is devoted to an intensive analysis of the work of the major sociological thinkers of the 19th and 20th centuries, including Durkheim, Simmel, Marx, Weber, and Mead. The second quarter is concerned with major theoretical issues in current sociology.

201A–B–C. Advanced Research Methods. (4) I, II, III. The Staff

Prerequisite: Sociology 103 and 104A–B or equivalent.

Sociology 201A provides advanced training in survey techniques; 201B is concerned with experimental methods; and 201C is devoted to methods for collecting and analyzing data on naturally occurring behavior.

202. Issues in Sociological Inquiry. (4) II. Mr. Gold

Prerequisite: Sociology 103.

203. Theory and Method in Sociology. (4) I. The Staff

Prerequisite: Sociology 103 and 104, or consent of instructor.

204A–B. Advanced Statistics. (4) I, II. Mr. Gold

Prerequisite: Sociology 103 and 104, or equivalent.

208. Formal Analysis in Sociology. (4) III. The Staff

Prerequisite: Philosophy 31, or consent of instructor.

Clarification of existing sociological theories by resolution into explicit form. Special attention to axiomatic method.

209. Evaluating Action Research Programs. (4) II. The Staff

Methodological critique of sociological studies that have policy implications.

210. Seminar in Ethno-methodology. (4) III. Mr. Zimmerman

222. Social Stratification. (4) III. The Staff

224. Seminar in Collective Behavior. (4) II. Mr. Shibutani

226. Seminar in Human Ecology. (4) II. The Staff

Consideration of theory and research implicit and explicit in the concept of human ecology, with particular emphasis on population composition, social and economic organization, modes of transportation and communication, and geographic factors.

228 A–B. Selected Problems in American Racism. (4–4) I, II, III. The Staff

Sociology 228A will explore racism in the United States as a social institution. Primary emphasis will be given to theoretical treatments of racism, and to locations within social structure wherein theoretical claims can be assessed. The relevance of theoretical claims, and analyses derived therefrom, for action and for policy imperatives will be emphasized.

Sociology 228B is devoted to field explorations and research in the study of racism. It is expected that each student will come to the seminar with an area of interest in the study of racism formulated and will evolve a theoretical viewpoint within which to articulate this interest. The major work of the seminar will be the development and implementation of a theoretically relevant research design and a write-up which includes presentation, analysis, and criticism of results.

230. Seminar in Social Change. (4) III. The Staff

231. Seminar in Political Sociology. (4) II. Mr. Gold

232. Public Opinion and Mass Communication. (4) II. Mr. Gold

239. Sociology of Law. (4) III. Mr. Chambliss

240. Social Control. (4) II. Mr. Shibutani

241. Seminar in Interpersonal Relations. (4) I. Mr. Scheff

242. Seminar in Language and Social Interaction. (4) III. The Staff

Prerequisite: Sociology 136 or one course in one of the following: linguistics, psycholinguistics, anthropological linguistics.

The course would cover current problems in sociolinguistics including issues in phonological, syntactic, and semantic theory as developed by linguists in order to show their relevance for sociology. Emphasis will be placed upon recent procedures developed by sociologists for studying everyday conversations. The child's acquisition of social competence will be studied within a language framework. The central idea is how the child acquires the necessary competence to engage in social interaction.

243. Practicum in Social Psychology. (4) I, II, III. Mr. Gold, Mr. Scheff, Mr. Shibutani

254. The Family. (4) II. Mr. Spaulding

257. Theories of Religious Behavior. (4) III. Mr. O'Dea

265. Seminar in Sociology of Medicine. (4) III. Mr. Scheff

267. Seminar in Complex Organizations. (4) III. The Staff

270. Deviant Behavior. (4) Mr. Scheff

272. Seminar in Criminology. (4) II. The Staff

Selected topics in the sociology of crime, delinquency, criminal justice, and corrections.

Advanced Graduate Study and Research Courses

594AA–594ZZ. Special Topics. (2–5) I, II, III. The Staff

Special seminar on research subjects of current interest. May be repeated for credit on approval of Department Chairman.

595AA–595ZZ. Group Studies. (4) I, II, III. The Staff

Critical review of research in selected fields. May be repeated for credit on approval of Department Chairman.

596AA–596ZZ. Directed Reading and Research. (2–5) I, II, III. The Staff

Individual tutorial. Plan of study must be approved by Department Chairman. May be repeated for credit on approval of Department Chairman. No more than half the graduate units required for the M.A. may be taken in Sociology 596.

597AA–597ZZ. Individual Study for M.A. and Ph.D. Examinations. (4–8) I, II, III. The Staff

Normally taken with the student's committee chairman. Units do not count toward graduate degrees. Maximum of 24 units per examination.

598AA–598ZZ. M.A. Thesis Research and Preparation. (0) I, II, III. The Staff

Open only to students who have petitioned the Graduate Division to take the M.A. under Plan I (Thesis and 30 units). Normally taken with the student's committee chairman.

599AA–599ZZ. Ph.D. Dissertation Preparation. (2–6) I, II ,III. The Staff

Normally taken with the student's committee chairman. Maximum of 12 units total.

SPANISH AND PORTUGUESE

Eda Ramelli, Doctora en Letras, *Professor of Spanish, Emeritus.*
[1]José Luis L. Aranguren, Ph.D., *Professor of Spanish.*
David Bary, Ph.D., *Professor of Spanish.*
Winston A. Reynolds, Ph.D., *Professor of Spanish.*
Jorge de Sena, Ph.D., *Professor of Portuguese and Comparative Literature.*
[1]Arturo Serrano-Plaja, Licenciado en Letras, *Professor of Spanish.*
[2,3]Pablo Avila, Ph.D., *Associate Professor of Spanish.*
[4]Carlos García Barrón, Ph.D., *Associate Professor of Spanish.*
Brenton K. Campbell, Ph.D., *Associate Professor of Spanish (Vice-Chairman of Department).*
Mireya Jaimes-Freyre, Ph.D., *Associate Professor of Spanish.*
Enrique Martínez-López, Ph.D., *Associate Professor of Spanish (Chairman of the Department).*
[3]Carlos H. Albarracín-Sarmiento, P.L., *Assistant Professor of Spanish.*
[3]Victor F. Fuentes, Ph.D., *Assistant Professor of Spanish.*
[1]Marta Gallo, P.L., *Assistant Professor of Spanish.*
[3]John R. Kelly, Ph.D., *Assistant Professor of Spanish and Portuguese.*
Harvey L. Sharrer, *Assistant Professor of Spanish and Portuguese.*
[3]Roberto de Souza, P.L., *Assistant Professor of Spanish.*
John H. Schmitt, *Acting Assistant Professor.*
Armando D. Grant, *Lecturer in Spanish.*
Nélida López, B.A., *Lecturer in Spanish.*
Robert E. Wilson, M.A., *Lecturer in Spanish* (*Supervisor of Teaching Assistants*).

The Major

Preparation for the Major (i.e., lower division), Spanish 6, 25A–B, 30A–B, History 8A–B (Spanish 30A–B fulfills 3a of general education requirements and History 8A–B also fulfills the State requirement in American History and Institutions). Students who have already met the American History and Institutions requirement may substitute for History 8A–B two quarters of a course chosen from among History 101A–B–Q, 150A–B, 151A–B–C, 156A–B or 159A–B.

Students who wish to make Spanish their major subject must have maintained an average grade of at least C in the Spanish courses taken prior to their junior year. Students transferring from other institutions may be tested by examination.

Those planning to pursue graduate work in Spanish with emphasis on linguistics and philology are advised to take a minimum of two quarters of college Latin or its equivalent.

Native speakers of Spanish will not be permitted to enroll in any Spanish courses lower than 25A. The Department defines "native speakers" as persons who took their primary and secondary schooling in a Spanish-speaking country. Because of the highly sequential nature of lower division language courses 1–6, students who have received in one of these courses a grade lower than "C," are urged not to continue to the next higher course. Instead they should repeat the course for no credit or provide themselves with a tutor to prepare them for the next course.

All upper division courses are given in Spanish. Spanish 25A–B or equivalent is prerequisite to all upper division courses. Spanish 28 is prerequisite to 100A–B–C, 101A–B and 121 A–B. Spanish 30A–B or equivalent is prerequisite to all upper division courses except Spanish 100A–B–C, Spanish 101A–B, Spanish 102A–B, Spanish 103, 104, Spanish 119A–B, Spanish 121A–B, Spanish 176A–B, Spanish 177A–B, Spanish 178 or Spanish 180.

Requirements for the Major: 40 upper division units, of which 8 units may be in Luso-Brazilian literature. Students planning to do graduate work in Spanish are advised to take Spanish 122A–B and either 131A–B, 134A–B or 137A–B. Balanced preparation for graduate work should also include courses in Spanish-American literature and in Peninsular literature of the 18th, 19th and 20th centuries. Candidates for the General Secondary Credential in Spanish must complete Spanish 102A–B (Advanced Grammar and Composition) and Spanish 103 (Spanish Pronunciation).

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[1] Absent on leave, fall 1971.
[2] Absent on leave, winter 1972.
[3] Absent on leave, spring 1972.
[4] Absent on leave, 1971–72.

The Minor

A minimum of 30 units in Spanish required, of which 14 units must be upper division.

Candidates for the General Secondary Credential in Spanish must complete Spanish 102A–B and Spanish 103.

THE DEGREE OF MASTER OF ARTS

The department follows Plan II, with no thesis requirement. An M.A. candidate must have taken the Advanced Test in Spanish of the Graduate Records Examination, before being admitted. He must complete a minimum of 39 units of graduate and upper division courses, of which at least 27 units must be in the graduate series. Spanish 121 A–B is a required course for the M.A. If a candidate presents upper division units in partial satisfaction of requirements, he may offer a total of not more than 8 units of upper division work in Luso-Brazilian literature.

The comprehensive examination, generally administered by the Department during the last two weeks of classes in any quarter, consists of written examinations totaling five hours and a one-hour oral examination.

THE DEGREE OF DOCTOR OF PHILOSOPHY IN SPANISH

In addition to fulfilling the general requirements for admission to graduate status, the applicant must satisfy the following departmental requirements:

The student contemplating a doctorate in Spanish will normally follow a course of study leading to the M.A. degree under Plan II, taking 39 units of course work, at least 27 of which must be in the graduate series. Each M.A. examining committee will make a recommendation to the Department regarding the advisability of the student's continuing work toward the Ph.D. Upon receiving a favorable recommendation, the student will plan, in consultation with his graduate adviser, an individual course of study in keeping with his needs and interests.

Students entering the program from other universities must take the Advanced Test in Spanish of the Graduate Records Examination before being admitted. They must begin making up any course deficiencies (including Spanish 121A–B, if it or an equivalent course has not already been completed) during their first quarter of residence. At the end of one or two quarters, the work of such students will be evaluated by the Department; only those who receive a favorable report will be permitted to continue working toward admittance to candidacy.

The major will embrace the broad field of Spanish and Spanish American literature. The student will pursue both course work and directed individual study in such areas as may best help him to prepare for the qualifying examination and to deepen his knowledge in fields of special interest.

The student will also complete a minimum of three graduate courses in a minor field. The minor will provide the student with supplementary knowledge in areas related to the major, thus making possible a "comparatist" approach to the study of Spanish and Spanish American literature. It is expected that most students will minor in another literature, often a Romance literature, but an individual with strong interest and adequate background may minor in another of the humanities, or even in an appropriate social science. The courses in the minor will bear a demonstrable relation to the student's special interests within the major, and must be approved by a departmental committee. A minor may be taken in Luso-Brazilian literature.

Before being admitted to candidacy for the doctorate, the student will demonstrate a good reading knowledge of two foreign languages besides Spanish and Portuguese. The choice of languages will depend largely upon the student's individual needs.

It is expected that course work for the doctorate will normally be completed in three years of full-time study. Most students will be encouraged to acquire a knowledge of the principal Luso-Brazilian works within their general area of specialization, but there will be no absolute course requirement in this area.

Before advancement to candidacy, the student must pass a qualifying examination given by the Department. This will consist of a written examination covering all the generally studied areas within the major. Thereafter he will take an oral examination to be administered by a doctoral committee appointed by the Graduate Council.

After being advanced to candidacy, the student will select a dissertation topic, in consultation with his doctoral committee. Upon the approval of the topic and research plan by the doctoral committee, the student will write his dissertation. Upon successful completion of the dissertation, the student will be awarded the degree.

TEACHING CREDENTIALS

Either a major or a minor in Spanish may serve as an appropriate part of the program of studies required for an elementary, secondary or junior college teaching credential in California.

All candidates for a General Secondary Credential with either a major or minor in Spanish must complete Spanish 102A–B (Advanced Grammar and Composition) and Spanish 103 (Spanish Pronunciation). Spanish 100A–B–C (The Spanish Language: a Linguistic Approach), and Spanish 119A–B (Spanish Institutions and Culture), Spanish 176A–B (Contemporary Spanish Culture), Spanish 177A–B (Spanish American Culture), or Spanish 178 (Mexican Culture), are recommended.

The student should confer with designated counselors in the Department of Spanish and Portuguese and in the Graduate School of Education concerning a teaching minor and other information regarding curricula for the credentials.

The Minor in Portuguese

A minimum of 30 units in Portuguese is required, of which 14 units must be upper division.

Candidates for the General Secondary Credential should consult the Graduate School of Education concerning the use of this minor for credential purposes.

PORTUGUESE

Lower Division Courses

1. Elementary Portuguese. (4) I. The Staff

2. Elementary Portuguese. (4) II. The Staff

3. Elementary Portuguese. (4) III. The Staff

Portuguese 8A–B. Portuguese Conversation. (2) I, II, III. The Staff

Prerequisite: Portuguese 3 or equivalent, or consent of instructor.

Portuguese 11A–B. Intensive Portuguese. (4–4) I, II or II, III. The Staff

To meet reading requirements of graduate students.

Upper Division Courses

101A–B–C. Advanced Reading and Composition. (4–4–4) I, II, III. The Staff

Prerequisite: Portuguese 3 or equivalent.

Analysis of selected ltierary texts and development of skills in writing Portuguese.

Completion of Portuguese 101A–B will satisfy general language requirement.

105A–B–C. Introduction to Portuguese and Brazilian Literature (4–4–4) I, II, III. The Staff

185. Brazilian Novel–20th Century. (4) I, II or III. The Staff

199. Independent Studies in Portuguese (1–5) The Staff

298. Special Studies in Portuguese. (1–5) I, II, III The Staff

SPANISH

Lower Division Courses

1. Elementary Spanish. (4) I, II, III. The Staff

2. Elementary Spanish. (4) I, II, III. The Staff

3. Elementary Spanish. (4) I, II, III. The Staff

4. Intermediate Spanish. (4) I, II, III. The Staff

4R. Intermediate Spanish. (4) I, II, III. The Staff

Emphasis on reading and translation. Not intended for Spanish majors.

5. Intermediate Spanish. (4) I, II, III. The Staff

5R. Intermediate Spanish. (4) I, II, III. The Staff

Emphasis on reading and translation. Not intended for Spanish majors.

6. Intermediate Spanish. (4) I, II, III.

(For Spanish majors and minors) The Staff

6R. Intermediate Spanish. (4) I, II, III.

Reading emphasis. The Staff

(Intended primarily for majors in English and other literatures than Spanish)

Spanish 8A. Spanish Conversation. (2) I, II, III. The Staff

Prerequisite: Spanish 3 or equivalent.

Spanish 8B. Spanish Conversation. (2) I, II, III. The Staff

Prerequisite: Spanish 4 or equivalent

Spanish 8C. Spanish Conversation. (2) I, II, III. The Staff

Prerequisite: Spanish 5 or equivalent.

Spanish 9A. Advanced Spanish Conversation. (2) I, II, III. The Staff

Prerequisite: Spanish 6 or equivalent.

Spanish 9B. Advanced Spanish Conversation. (2) I, II, III. The Staff

Prerequisite: Spanish 25A or equivalent.

Spanish 9C. Advanced Spanish Conversation. (2) I, II, III. The Staff

Prerequisite: Spanish 25B or equivalent.

Spanish 11. Intensive Spanish for Graduate Students. (8) I, II, III. The Staff

Spanish 15A–B–C. Elementary Chicano Spanish. (4–4–4) I, II, III. The Staff

Designed to make student functional in the language of the barrio and colonia.

Spanish 16A–B–C. Intermediate Chicano Spanish. (4–4–4) I, II, III. The Staff

Designed to make student functional in language of the barrio and the colonia.

Completion of Chicano Spanish through 16B may be used to satisfy general language requirement.

25A–B. Advanced Spanish. (3–3) I, II, III. The Staff

28. Introduction to Linguistics (3) I, II, or III. The Staff

Prerequisite: Spanish 6 or equivalent.

***30A–B. Introduction to Hispanic Literature** (3–3) I, II or III. The Staff

Prerequisite: Spanish 6 or equivalent.

Upper Division Courses

Spanish 25A–B or equivalent is prerequisite to all upper division courses. Spanish 28 is prerequisite for Spanish 100A–B–C, Spanish 101A–B and Spanish 121A–B. Spanish 30A–B or equivalent is prerequisite to all upper division courses except Spanish 100A–B–C, Spanish 101A–B, Spanish 102A–B, Spanish 103, Spanish 104, Spanish 119A–B, Spanish 121A–B, Spanish 176A–B, Spanish 177A–B, Spanish 178 or Spanish 180.

100A–B–C. The Spanish Language: A Linguistic Approach (3–3–3) I, II, III.

100A. Phonetics and Phonemics The Staff

Prerequisites: Spanish 25 and 28.

100B. Morphosyntax.

Prerequisites: Spanish 25 and 28.

100C. Semantics.

Prerequisites: Spanish 25 and 28.

101A–B. American Spanish (3–3) I, II or II, III. The Staff

Geographical, social and stylistic distribution of phonemic, morphosynactic and lexical features in American Spanish, with special reference to the Spanish spoken in the U.S.

Prerequisites: Spanish 25 and 28.

102A–B. Advanced Grammar and Composition. (3–3) I, II or II, III. The Staff

††103. Spanish Pronunciation. (2) I, II or III. Mr. Avila

Practical exercises in Spanish pronunciation with a view to correcting deficiencies.

104. Spanish Versification (4) I, II or III. The Staff

Analysis and description of the basic units of Spanish verse: number of syllables, distribution of stress, accent and rhyme; classification of verses and stanzas, as found in Spanish and Spanish American texts of various periods.

Spanish 107. Languages in Contact. (4) I, II, III. The Staff

Bilingual community cultural and language contact.

117A–B. Essayists of Spain and Spanish America (4–4). I, II or II, III. The Staff

Representative of essayists of Spain, from Saavedra Fajardo to Ortega y Gasset and of Spanish America, from Sarmiento and Montalvo to Alfonso Reyes and Octavio Paz.

119A–B. Spanish Institutions and Culture. (4–4) I, II or II, III. The Staff

Study of the development of the Spanish nation, with special focus on key social and political institutions, the arts, and major currents of thought.

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* May be used to satisfy foreign literature requirement.

†† Enrollment by permission of instructor only.

121A–B. History of the Spanish Language. (4–4) I, II or II, III. The Staff

Development of the Spanish language from its origins to modern times.

Prerequisite: Spanish 25 and 28.

122A–B. Medieval Spanish Literature. (4–4) I, II or II, III. The Staff

A detailed survey of the main trends in Spanish literature to 1500.

123A–B. El Romancero. (4–4) I, II or II, III. Mr. Martínez-López, Mr. Serrano-Plaja

History of Spanish ballad. Hispanic balladry in Spanish America, the United States and among Sephardic Jews.

124A–B. Introduction to the Theory of Literary Criticism. (4–4–4) I, II or II, III. Mr. Grant.

Techniques of analyzing literary works in terms of language, forms and structure, with attention to the special problems of the Spanish language; close readings of specific Hispanic poems and short stories.

131A–B. Golden Age Poetry. (4–4) I, II or II, III. Mr. Martínez-López, Mr. Reynolds

Lyric poetry of the 16th and 17th centuries: Garcilaso, Luis de León, San Juan de la Cruz, Lope Quevedo, Góngora and others.

134A–B. Golden Age Prose. (4–4) I, II or II, III. Mr. Reynolds

The main novelistic types of the period: novel of chivalry; pastoral novel; picaresque novel and others (*Don Quijote* excluded).

137A–B. Golden Age Drama. (4–4) I, II or II, III. The Staff

The classic *Comedia,* by Lope, Tirso, Alarcon, Calderón and other dramatists.

140A–B. Cervantes: ***Don Quijote.*** (4–4) I, II or II, III. Mrs. Jaimes-Freyre, Mr. Serrano-Plaja

Reading and discussion of the first and second parts of *Don Quijote.*

141A–B. Cervantes: Other Works. (4–4) I, II or II, III. Mrs. Jaimes-Freyre, Mr. Serrano-Plaja

Readings from the minor works of Cervantes: *Novelas ejemplares, Comedias, Entremeses.*

145. Colonial Spanish American Literature. (4) I, II or III. The Staff

Such writers as Garcilaso de la Vega, el Inca, Bernardo de Balbuena, Carlos de Sigûenza y Góngora, Sor Juana Inés de la Cruz, Manuel M. de Navarrete.

150. XVIIIth Century Spanish Culture. (4) I, II or III. Mr. Barrón, Mr. Bary

Literature, social history, artistic and intellectual developments of 18th century Spain.

156A–B. Spanish American Literature from Independence to the Present. (4–4) I, II or II, III. Mr. Avila, Mr. Kelly

Representative authors such as Heredia, Bello, Sarmiento, Palma, J. Hernández, Z. de San Martín, Darío, Rodó, A. Reyes, G. Mistral.

160A–B. XIXth Century Spanish Prose. (4–4) I, II or II, III. Mr. Barrón, Mr. Aranguren

Representative selections from the *costumbristas,* such as Larra and Mesonero, and from novelists such as Alarcón, Pereda, Valera, Galdós and others.

164. XIXth Century Spanish Poetry. (4) I, II or III. Mr. Barrón, Mr. Fuentes

Works of Esponceda, Zorrila, Bécquer, Rosalía de Castro and others.

167. XIXth Century Spanish Drama (4) I, II or III. Mr. Barrón

Representative works of such dramatists as Rivas, Zorrilla, Echegaray and others.

170A–B. Spanish Literature from 1898 to 1936. (4–4) I, II or II, III. Mr. Fuentes, Mr. Bary

Readings of such authors as Unamuno, Baroja, Azorín, Valle-Inclan, Antonio Machado, Ortega, Gómez de la Serna, Guillen, García Lorca and others, analyzed in their historical and social context.

175. Contemporary Spanish Literature. (4) I, II or III. Mr. Bary, Mr. Fuentes

A study of the main trends of post-war Spanish novel, theater and poetry, in their historical and social context.

176A–B. Contemporary Spanish Culture. (4–4) I, II or II, III. Mr. Aranguren

Main developments in Spanish thought, research and education since the beginning of the 20th century.

177A–B. Spanish American Culture. (4–4) I, II or II, III. The Staff

Leading social, institutional, intellectual and artistic trends from the 16th century to the present.

178. Mexican Culture. (4) I, II, or III. The Staff

Prerequisite: Spanish 25A–B. May not be taken for credit if 180 taken.

Social, institutional, intellectual and artistic trends in the development of modern Mexico.

185A–B. Modern Spanish American Novel. (4–4) I, II or II, III. Mr. Kelly

Spanish American novel from Romanticism to the present, including readings in such representative authors as Blest Gana, Gálvez, Barrios, Gûiraldes, Azuela, Carpentier, Fuentes, Cortázar, García Márquez and others.

186A–B. Modern Mexican Literature (4–4) I, II or II, III. The Staff

Major trends in the literature of the Mexican people, including such movements as Modernist poetry, the novel of the Revolution, the *Contemporáneos* and others.

187. Modern Spanish American Drama. (4) I, II or III. The Staff
Plays of representative dramatists: Caraballido, Solórzano, Wolff, Cuzzani, Marqúés and others.

189A–B. Modern Spanish American Poetry. (4–4) I, II or II, III. Mrs. Jaimes-Freyre, Mr. Bary
Modernist and Vanguard schools: Darío, Herrera y Reissig, Huidobro, Vallejo, Neruda, Paz and others.

191A–B–C. The Theme of Don Juan in Spanish Literature (4–4–4) I, II, III. Mr. Serrano-Plaja
The theme of Don Juan as developed by representative Spanish authors from the 16th to 20th centuries.

198. Individual Hispanic Authors. (4) I, II, III. The Staff
Intensive reading and discussion of selected Hispanic authors. May be repeated for a total of 20 units.

199. Independent Studies in Spanish. (1–5) I, II, III. The Staff

Graduate Courses

201A–B–C. Historical Grammar and Old Spanish Readings. (3–3–3) I, II, III. Mr. de Souza, Mr. Campbell
Prerequisite: 2 quarters College Latin or equivalent.

209A–B–C. Dialectology. (3–3–3) I, II, III. Mr. de Souza

212. Bibliography and Methods of Research. (3) I, II or III. Mr. Barrón, Mr. Campbell

213A–B. Theory of Literary Criticism. (3–3) I, II or II, III. Mr. Campbell

218A–B–C–D–E–F. Individual Hispanic Authors (3–3–3–3–3–3) I, II, III. The Staff

222A–B–C. Studies in Medieval Spanish Literature. (3–3–3) I, II, III. The Staff

231A–B–C. Poetry of the Golden Age of Spain. (3–3–3) I, II, III. Mr. Martínez-López, Mr. Reynolds

232A–B–C. The Spanish Mystics. (3–3–3) I, II, III. Mr. Serrano-Plaja

234A–B–C. Narrative Prose of the Golden Age of Spain. (3–3–3) I, II, III. The Staff

235A–B–C. Moralists and Satirists of the XVIth and XVIIth Centuries. (3–3–3) I, II, III. Mr. Serrano-Plaja

237A–B–C. Comedia of the Golden Age of Spain. (3–3–3) I, II, III. The Staff

238A–B. Auto Sacramental. (3–3) I, II, or II, III. Mr. Martinez-López

240A–B–C. Studies on Cervantes. (3–3–3) I, II, III. Mr. Serrano-Plaja, Mrs. Jaimes-Freyre

245A–B–C. Studies in Spanish American Colonial Literature. (3–3–3) I, II, III. Mr. Reynolds

260A–B–C. Studies in XIXth Century Spanish Literature. (3–3–3) I, II, III. Mr. Aranguren, Mr. Barrón

270A–B–C. Studies in XXth Century Spanish Literature: 1898–1936. (3–3–3) I, II, III. Mr. Bary, Mr. Aranguren, Mr. Serrano-Plaja

275A–B–C. Spanish Literature since the Civil War. (3–3–3) I, II, III. Mr. Aranguren, Mr. Bary, Mr. Fuentes

280A–B–C. Studies in XIXth and XXth Century Spanish American Poetry. (3–3–3) I, II, III. Mrs. Jaimes-Freyre, Mr. Bary

283A–B–C. El Modernismo. (3–3–3) I, II, III. Mrs. Jaimes-Freyre

285A–B–C. The Novel in Spanish America. (3–3–3) I, II, III. Mr. Kelly

290A–B–C. The Literature of a Single Spanish American Country. (3–3–3) I, II, III. The Staff

Spanish 594A–594ZZ. Special Topics. (1–4) I, II, III. The Staff
Special seminar on research subjects of current interest.

Spanish 596A–596ZZ. Directed Reading and Research. (2–18) I, II, III. The Staff
Individual tutorial.

Spanish 597A–597ZZ. Individual Study for M.A. Comprehensive or Ph.D. Exams. (2–12). I, II, III. The Staff

Spanish 599A–599ZZ. Ph.D. Dissertation Preparation. (2–12) I, II, III. The Staff
Only for preparation of the dissertation.

Courses Given in English

Portuguese 114. Literature of the Portuguese Expansion. (4) I, II or III. The Staff
Literary Masterpieces of Portuguese Golden Age. In English.

***Portuguese 115. Brazilian Literature in English Translation** (4) I, II, or III. The Staff

Readings in English of significant writers and poets of 19th and 20th century Brazil: Almeida, Machado de Assis, Lins do Rêgo, de Andrade, Meireles, Guímaräens Roes, Saessuna and others.

Portuguese 121. History of the Portuguese Language. (4) I, II or III. The Staff

Introductory study of evolution of Portuguese language, origins to modern times. In English.

Portuguese 125A–B. Culture and Civilization of Portugal and Brazil. (4–4) I, II or II, III. The Staff

In English.

†*Spanish 115A–B. Masterpieces of Spanish Literature in English Translation. (4–4) I, II or II, III. The Staff

A close reading of selected works—poetry, drama, novel—from the Middle Ages, the "Golden Age," and the Contemporary Period, such as *The Poem of the Cid, Don Quijote,* and selections from Unamuno and García Lorca.

†*Spanish 120 A–B. Spanish American Literature in English Translation. (4–4) I, II or II, III. The Staff

Outstanding 20th century novelists of Latin America, with emphasis on contemporary Argentina, Brazil, Chile, Mexico and Peru.

***Spanish 180. Mexican Civilization.** (4) I, II, III. The Staff

Social, institutional, intellectual and artistic trends in development of Mexico.

May not be taken for credit if 178 already taken.

°*Spanish 181. Social Poetry of Spain and Latin America in English Translation. (4) I, II or III. The Staff

Poets such as Cesar Vallejo, Pablo Neruda, Nicanor Parra and others.

°*Spanish 188. Latin American Black Poetry in English Translation. (4) I, II or III. The Staff

Black poetry in the Caribbean and in Brazil: Nicolas Guillén, Emilio Ballagás and others.

° Do not count toward preparation for Spanish major or minor.

† Not open to Spanish majors or minors.

* May be used to satisfy foreign literature requirement.

SPEECH

Theodore D. Hanley, Ph.D., *Professor of Speech Science.*
Glen E. Mills, Ph.D., *Professor of Speech (Chairman of the Department).*
Upton S. Palmer, Ph.D., *Professor of Speech.*
[2,3]Edwin R. Schoell, Ph.D., *Professor of Speech.*
John C. Snidecor, Ph.D., *Professor of Speech Pathology, Emeritus.*
Sanford E. Gerber, Ph.D., *Associate Professor of Audiology.*
Rollin W. Quimby, Ph.D., *Associate Professor of Speech.*
Janis M. Costello, Ph.D., *Assistant Professor of Speech Pathology.*
S. John Macksoud, Ph.D., *Assistant Professor of Speech.*
Anthony J. Mulac, Ph.D., *Assistant Professor of Speech.*

◆

Kathleen N. Corey, M.A., *Lecturer in Speech.*
Carole C. Carmait, M.A., *Assistant Specialist in Speech Pathology.*
Joseph R. Di Bartolomeo, M.D., *Research Associate in Audiology.*
Jesse R. Freeland, M.D., *Research Associate in Speech Pathology.*
Donald R. Gillies, M.D., *Research Associate in Audiology.*
Harris Meisel, M.D., *Research Associate in Speech Pathology.*

The Major

Three majors are offered within the Department of Speech: general speech, rhetoric and public address, and speech and hearing. The general speech and rhetoric and public address majors give greater emphasis to General Education courses outside of but related to the field of speech than does the speech and hearing major.

All majors offered lead to graduate work. California teaching credentials require five years of work.

Preparation for the Major

Majors in speech and hearing will take Speech 20, others Speech 11 or 101. Students who have completed Speech 11 or 101 prior to selecting a major in speech and hearing may substitute either course for Speech 20.

English 1A or 1B may be taken concurrently with lower division work in speech.

Requirements for the Major

With the advice of an academic counselor, students will plan a program of study. Programs are subject to review by the chairman who may require modifications. In addition to normal academic requirements, students preparing to teach are strongly urged to participate in performance activities in oral interpretation, debate, and public speaking as part of their professional preparation. Participation in communication research also is recommended.

General Speech Major

Students must meet the General Education requirements as outlined in this catalog. Courses listed below, whether in General Education sequence or not, are required in the general speech major.

Lower Division—Speech 11 or 101; 8 units from 40, 42, 47; 7–8 units from Anthropology, Psychology, or Sociology.

Upper Division—4 units from Speech 117, 118, 119; 4 units from 112, 131; 4 units from 132A–B, 133A–B, 134; 142; 4 units from 130, 135, 136; 150; and 12 units upper division Speech electives selected from any of above not taken or 141, 147, 157, 172, 180, 181.

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[2] Absent on leave, Winter 1972.
[3] Absent on leave, Spring 1972.

Speech and Hearing Major

Students must meet the General Education requirement as outlined in this catalog. *Lower Division*—Speech 20 or equivalent transfer credit, Psychology 1 or 101, Linguistics 20, Biology 20, Physics 1 or 10.

Upper Division—Speech 150, 155A–B, 165, 166, 167, 172, 173A–B, 174, 175, 178; and 3–4 units from Speech 117, 118, Linguistics 110 or 111.

The speech and hearing credential requires a graduate year. See speech adviser.

Rhetoric and Public Address Major

Students must meet the General Education requirements as outlined in this catalog. Courses listed below, whether in General Education sequence or not, are required in the rhetoric and public address major.

Lower Division—Speech 11 or 101; 4 units from 42 or 47; 4 units from Economics or Political Science; 4 units from History 4A, 111A–B, 112, 113A–B; 4 units from History 172A–B, 173A–B; 4 units from Psychology or Sociology.

Upper Division—2–4 units from Speech 112, 141, 157; 4 units from 117, 118, 119; 130; 131 or 142; 4 units from 132A–B, 134, 135, 136; and 18 units upper division Speech electives selected from any above not taken or Speech 147, 150, 180, 181.

The Minor

Thirty units are required. Speech 11 or 101, and a total of 26 units from the following:

A. At least 4 units from Speech 42, 142.

B. At least 4 units from Speech 47, 157.

C. Speech 131.

D. Remaining units from A or B above and from Speech 112, 117, 118, 119, 132A–B, 134, 135, 136, 180. Education SP 290 must be taken in addition.

GRADUATE PROGRAM

The department offers work leading to the M.A. degree in rhetoric and public address and speech pathology and audiology.

Although normally the entering graduate student has an undergraduate major in speech, qualified students from related areas are admitted with the understanding that all graduate students must have or acquire a background comparable in breadth to that of the B.A. candidates in speech on this campus. No graduate student may take a graduate course in speech who has completed fewer than three courses in upper division speech.

The student must demonstrate ability in the subject matter of his field in an approved foreign language. The candidate in speech pathology and audiology will be required to demonstrate adequacy in the field of statistics.

TEACHING CREDENTIALS

Either a major in general speech or rhetoric and public address or a minor in speech may serve as an appropriate part of the program of studies required for teaching credentials in California. A student wishing to prepare for any of these credentials should confer with designated counselors in the Department of Speech and in the Graduate School of Education.

California Certification in Remedial Speech and Hearing

The department offers the course sequence required by the State Department of Education for the preparation of speech and hearing clinicians in the public schools. The specialized credential requires a major in speech and hearing with courses at the graduate and undergraduate level. This credential does not qualify the holder for classroom teaching in academic subjects.

The student will complete the specified number of units listed in each section below:

Credential Sequence

28 units in the following breadth areas:

1. Psychological and sociological aspects of human development: Education 212.
2. Psychology (growth and development) of exceptional children: (Covered in Psychology 1, Speech 172, 173A–B, 167. Some students will elect Psychology 104.)
3. Bases of speech, hearing and language, including anatomical, physiological, neurological, psychological and physical aspects: Speech 150, 155A, 155B.
4. Speech and language development, including genetic and cultural aspects: Linguistics 20, Speech 165.
5. Objectives and basic foundations of public education: Education 206 (preferred) or 203.
6. Role of the speech and hearing specialist in public education: Education Speech 290C.
7. Specialized techniques and procedures related to speech and hearing problems in the public schools: Education Speech 290C.
8. Relation of speech and hearing services to the total educational program: Education Speech 290C.

61 specified units in the following concentration areas:

1. Current principles, procedures, techniques, and instrumentation used in evaluating the speech, language and hearing of children and adults: Speech 167, 178, 275.
2. Disorders of speech, language and hearing: their classification, causes and manifestations: Speech 172, 173A–B, 175.
3. Principles and remedial procedures used in habilitation and rehabilitation for those with various disorders of communication: Speech 168, 174, 274; and two courses selected from Speech 245, 266, 270, 271, 273.
4. Relationships among speech, language and hearing problems with particular concern for the child or adult with multiple physical or mental handicaps: Speech 277 or 278. (Students who transfer into the program with more than 25 units from another university must take both Speech 277 and 278.)
5. Organization and administration of programs designed to provide direct service to those with disorders of communication: Education Speech 290C.
6. Services available from related fields for those with disorders of communication: (Several of the courses listed above contain instructional units bearing on this topic.)
7. Theories of learning and behavior in their application to disorders of communication: Speech 166.
8. Effective use of information from related disciplines about the sensory, physical, emotional, social and intellectual status of a child or adult: Linguistics 110 or 111 or Speech 117 or 118; Psychology 103.
9. Principles and practices of counseling exceptional children and their parents: Education 123.

Clinical Practice and Student Teaching:

(1) One hundred eighty-five clock hours of clinical practice satisfied by Speech 167 listed above plus Speech 191 and/or other class related practicum.

(2) Ninety clock hours of student teaching, satisfied by Education SP 292B.

SPEECH

Lower Division Courses

***1. Foundations of Communication.** (4) I, III. Mr. Schoell

Prerequisite: Subject A.

Introductory course for nonmajors. Principles of written and oral forms of language. Analytic reading, discussion, and practice in written and oral communication.

11. Fundamentals of Speech. (4) I, II, III. Mr. Mulac

Introductory course, emphasizing current theories of communication, audience analysis, and persuasion. Preparation and presentation of speeches on topics of current concern. Conferences and videotape replay provides personalized assistance in the Tutorial Laboratory.

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* Not offered 1971–72.

20. Introduction to Speech. (4) I. Mr. Schoell
Orientation to the field of speech. Emphasis on the aspects of speech relevant to study in the speech and hearing major.

40. Radio and Television Broadcasting. (4) I, III. Mr. Quimby
Nature of the medium, its history, legal methods of control, significance in modern society, standards applicable to various program types.

42. Fundamentals of Oral Interpretation of Literature. (4) I. Mr. Macksoud
Principles and procedures of nonhistorical nonbiographical analysis of literature as preparation for oral interpretation; emphasis on the functions of fiction as drama and persuasion; oral and written projects in the analysis and communication of literature.

47. Argumentation and Debate. (4) I, III. Miss Corey
Introduction to argumentation theory and drill in debate techniques. Class members may be required to participate in some intercollegiate forensic activities.

48. The Principles and Practice of Discussion. (4) II. Miss Corey
The theory and technique of group discussion. Study of group characteristics, dynamics, leadership, and philosophy. Participation in discussion projects.

Upper Division Courses

101. Introduction to Public Speaking. (4) I, III. Mr. Mulac
Not open to students who have had Speech 11 or its equivalent.
Application of the principles of effective speech composition and delivery to public address.

112. Community Dialog. (4) II. Mr. Mills Miss Corey
Theoretical study of interpersonal, group and public speech communication followed by field application in local community through Campus Speaker's Bureau.

117. Language and Human Behavior. (4) I, III. Mr. Macksoud
Discussion of theories which explain meaning in language by the way in which human beings behave toward words.

118. The Limits of Language. (4) II. Mr. Macksoud
Discussion of the problems of the relation between verbal and nonverbal aspects of communication. Emphasis on the view that thinking is explainable as a series of verbal operations.

119. Language and Metaphor. (4) III. Mr. Macksoud
Investigation of the functions and uses of analogy and metaphor as linguistic stratagems. Particular attention to theoretical formulations concerning metaphoric and literal description.

130. Theories of Communication. (4) I. Mr. Mills
Highlights of rhetorical-philosophical contributions to communication theory from the ancient to the contemporary. Preparatory to period studies in Speech 180, 261 and 262.

131. Advanced Public Speaking. (4) III. Mr. Quimby
Prerequisite: Speech 11 or 101.
Analysis of elements of the communication construct. Assignments in speech composition and presentation.

132A. Great Issues in American Public Address. (4) I. Mr. Palmer
A survey of significant issues and a study of the leading speakers who dealt with them.

132B. Great Issues in American Public Address. (4) II. Mr. Palmer
A rhetorical study in depth of the speaking of a period, or the speaking on a single issue, or the speaking of an individual.

133A. British Public Address. (4) III. Mr. Palmer
Highlights in the history of British speaking.

***133B. British Public Address.** (4) III. Mr. Palmer
A rhetorical study in depth of the speaking of a period, or the speaking on a single issue, or the speaking of an individual.

134. Contemporary Public Address. (4) I. Miss Corey
An analytical study of the persuasive efforts of the leaders of major social, political, and religious reform movements since World War II.

135. Critical Analysis of Speeches. (4) II. Mr. Quimby
Introduction to the process of rhetorical criticism and the analysis of speech texts.

136. Persuasion. (4) III. Mr.Mulac
Prerequisite: Speech 11 or 101.
Analysis and synthesis of current persuasion theory as it has evolved through research in the behavioral sciences. Topics for study include: attention, motivation, set, materials of persuasion, stimulus manipulation and measurement or resultant behavior.

141. Chamber Theater. (1–4) I, II. Mr. Macksoud
Projects in composing, staging, directing, and performing programs in the oral interpretation of literature. May be repeated for a maximum of 8 units credit.

142. Oral Interpretation of Literature. (4) II. Mr. Macksoud
Exploration of the ways in which analysis and interpretation of literature functions as strategy for the establishment of conceptual perspectives; individual oral and written projects designed to establish relationships between literary works and external interpretative systems.

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* Not to be given, 1971–72.

147. Analysis and Briefing. (4) II. Miss Corey

Prerequisite: Speech 47 or consent of instructor. Development of briefs and cases relative to current issues. Emphasis on analysis of issues, logical reasoning and refutation.

148. Minority Group Issues: The Public Forum. (4) III. Miss Corey

Discussion of minority group issues framed within the context of group discussion theory and practice. Exploration of problems of discussion leadership, organization of discusssion, obligation of participants. Experience in public forum presentation.

150. Phonetics. (4) I. Mr. Hanley, Mr. Schoell

Description of the sounds of American speech and the use of the International Phonetic Alphabet to identify them. Historical trends in English phonology. Regional and foreign variations. Analysis of normal and deviate acoustic and physiological patterns of speech sound production.

155A. Speech Science: Acoustics. (3) I. Mr. Gerber

Acoustic bases for an understanding of speech communication.

155B. Speech Science: Physiology. (3) II. Mr. Hanley

Anatomical and physiological bases for an understanding of speech communication.

***156. Reason in Controversy.** (4) II. Mr. Mills

Construction and criticism of arguments in contemporary controversies.

157. Intercollegiate Debate. (1–4) I, II, III. Miss Corey

Participation in intercollegiate debate. Maximum of 4 units in any quarter.

May be repeated for a maximum of 9 units.

165. The Development of Language. (3) III Miss Costello

Prerequisite: Speech 172 or consent of instructor. A study of theories of normal development of language, language measurement, and subsequent reference to deviations from the normal in terms of measurement and training.

166. Principles of Behavior Modification. (4) II. Miss Costello

Basic principles of behavior modification and their use in classroom, family, and clinical environments with special reference to speech pathology.

167. Evaluative Procedures in Speech. (4) III. Mr. Hanley

Prerequisite: Speech 173A.

Review of normative research in speech and language development, vocal pitch, rate, and vocal quality. Consideration of examination procedures employed in speech retardation, misarticulation, voice disorders, cleft palate, cerebral palsy, stuttering, aphasia, mental retardation. Case work illustration.

168. Clinical Procedures: Speech and Hearing. (3) III. Mrs. Carmalt

Prerequisites: Speech 166, 173A.

Translation of theoretical knowledge into practical diagnostic and remediation techniques. Intensive observation of advanced clinicians.

172. Speech and Hearing Problems. (4) I, III. Miss Costello

Theoretical backgrounds for the training and education of speech and hearing handicapped child. Surveys problems such as emotional, developmental, voice, articulation disorders and stuttering.

173A. Advanced Speech and Hearing. (3) II. Mrs. Carmalt

Prerequisites: Speech 150 and 172.

Causes, correlatives, and the educational treatment of articulation and voice disorders with special reference to their functional nature.

173B. Advanced Speech and Hearing. (3) I. Miss Costello

Prerequisites: Speech 150 and 172.

Causes, correlatives and the educational treatment of stuttering and those speech disorders arising from such factors as cleft palate, hearing loss, and brain damage.

***174. Communication for the Hard of Hearing.** (4) II. Mr. Gerber

The re-coding of speech into visual, tactile, and other auditory means. Manual methods of communication, speechreading, auditory training, and problems of habilitation of the deaf. Instrumental aids for the deaf.

175. Introduction to Audiology. (4) III. Mr. Gerber

Prerequisite: Speech 150 and 155A.

Fundamentals of acoustics; anatomy and physiology of the hearing mechanism; diseases of the ear, including causes and types of deafness; otological considerations.

178. Identification Audiometry and Hearing Conservation. (4) I. Mr. Gerber

Prerequisite: Speech 175.

Introduction to clinical audiometry; problems of the hard-of-hearing; psychology of deafness; training and supervised practice in identification audiometry and interpretation of audiograms; administration of school audiometry.

180. Contemporary Rhetoric. (4) III. Mr. Mills

Discussion of theoretical formulations of Richards, Weaver, Burke, McLuhan, and others, and the theory-building dimension of research in verbal communication.

181. Quantitative Methods in Speech Research. (4) II. Mr. Mulac

The methodology for quantitative research in Speech. Computation of standard statistical procedures.

191. Clinical Practice: Speech and Hearing. (1–5) I, II, III. Mrs. Carmalt

Prerequisite: Speech 166 and 168.

Observation and supervised application of remedial procedures in Speech and Hearing Center, cerebral palsy center, school for retardates, and hospital rehabilitation facility. May be repeated for maximum of 6 units, only 3 of which apply to California credential.

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* Not to be given, 1971–72.

199. Independent Studies in Speech. (1–5) I, II, III. The Staff

Prerequisite: open to seniors of proven scholastic ability by consent of chairman and instructor. 199 courses are limited to no more than 5 units in one quarter and no more than 12 units total.

Graduate Courses

200. Introduction to Graduate Study in Speech. (3) I. Mr. Mills, Mr. Hanley

Open, with the permission of the departmental chairman, to qualified students who have completed the bachelor of arts degree.

Designed to acquaint the student with the procedures and disciplines essential for pursuing graduate work in the various areas of speech.

204. Theory and Practice of Argumentation. (4) II. Mr. Mills

Prerequisites: Speech 47, 156, or consent of instructor.

Theoretical study including descriptive and critical analysis of advocatory speeches and campaigns.

***205. The Rhetoric of Dissent.** (4) II. Mr. Mills

A study of the implications of ethics of communication, freedom of speech, alienation, and protest in rhetorical theory and public address.

206. Quantitative Studies in Speech. (4) III. Mr. Mulac

Prerequisite: Speech 181 or consent of instructor.

Current theories of speech communication which have evolved through quantitative research.

211. Experimental Design in Speech Research. (4) III. Mr. Mulac

Prerequisite: Speech 181 or consent of instructor.

Principles and methods of conducting experimental research in speech. Basic designs and their requirements will be evaluated in terms of applicability to theoretical problems.

212. Theory of Verbal Communication. (4) I. Mr. Macksoud

Exploration of the assumptions and constructs implicit in descriptions and explanations of verbal communication.

232. Public Address in Antiquity. (4) III. Mr. Quimby

Examination of great speakers and speaking customs. Attic orators to Augustine.

240A. Experimental Phonetics. (4) II. Mr. Hanley

Prerequisites: Speech 150 and 155A or consent of instructor.

Critical examination of theoretical and experimental foundations for current procedures in evaluation and description of vocal communication.

240B. Experimental Phonetics. (4) III. Mr. Hanley

Prerequisites: Speech 150 and 155A or consent of instructor.

A continuation of Speech 240A. 240A is not a prerequisite of 240B.

245. Experimental Studies in Speech. (4) I.

Prerequisite: Consent of instructor. The Staff

The critical consideration of experiments in speech pathology with an introduction to experimental procedures.

261. Classical Rhetoric. (4) I. Mr. Quimby

Prerequisite: Speech 34 or consent of instructor.

Examination of rhetorical theory of ancient Greece and Rome.

262. Medieval and Renaissance Rhetoric. (4) II. Mr. Quimby

Prerequisite: Speech 261 or consent of instructor.

Examination of the theory and teaching of rhetoric in the middle ages and Renaissance.

263. Rhetorical Criticism. (4) II. Mr. Mills

Prerequisite: Two courses in rhetorical theory or consent of instructor.

Descriptive and evaluative applications of rhetorical theories to specimens of oral discourse.

265. Seminar in Language. (3) II. Miss Costello

Prerequisite: Speech 165 or consent of instructor.

Advanced study of theories of normal development of language with special emphasis on critical analysis of supporting literature and formulation of appropriate research designs.

266. Behavior Modification in Speech Pathology. (3) II. Miss Costello

Prerequisites: Speech 166, 168, or consent of instructor.

The advanced use of behavior modification procedures in clinical speech pathology and study of research design methodology. Case work included.

270. Alaryngeal Speech. (3) II. The Staff

Research and rehabilitation related to the speech production of those individuals who have no larynx.

271. Stuttering and Other Dysfluencies. (4) II. The Staff

Historical and research backgrounds of stuttering and other dysfluencies. Theoretical considerations underlying rehabilitation procedures.

273. Seminar in Articulation. (4) III.

Prerequisites: Speech 191, 200 Miss Costello

The detailed study of articulation in terms of precise measurement, testing procedures and therapeutic techniques. Recent research will be thoroughly studied and emphasis will be placed on development of experimental designs arising from seminar discussions.

274. Experimental Studies in Hearing. (4) I. Mr. Gerber

Prerequisite: Consent of the instructor.

The application of experimental methods to the study of auditory processes with special attention to speech perception. Laboratory requires conduct and reporting of experiment.

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* Not to be given, 1971–72.

275. Advanced Audiology. (5) II. Mr. Gerber
Prerequisite: Speech 178, or permission of instructor.
Study of selected topics in Audiology: signal detection, binaural hearing, automatic audiometry, electrophysiology, impedance studies, etc.

276. Theories of Hearing. (3) III. Mr. Gerber
Prerequisite: Speech 175 or Psychology 110B.
Historical review of auditory theories as they apply to man and animals through Helmholtz to Bekesy. Emphasis on current theories of cochlear and retrocochlear processes. Auditory signal detection.

277. Organic Disorders of Speech: Structural. (3) II. Mr. Hanley
Evaluation and management of speech disorders associated with cleft palate and other congenital or traumatic structural defects.

278. Organic Disorders of Speech: Neurological. (3) III. The Staff
Evaluation and management of speech and language disorders associated with pathology in the central nervous system, such as cerebral palsy and aphasia.

279. Disorders of Phonation. (3) I. Mr. Hanley
Detailed analysis of the human phonatory mechanism, normal function and dysfunction. Examination of theoretical models. Evaluation and management of dysphonias.

***285. Seminar in History and Criticism of Rhetoric and Public Address.** (4) I. Mr. Mills

***286. Seminar in Quantitative Studies in Speech.** (4) I. Mr. Mulac

287. Seminar in Verbal Communication. (4) III. Mr. Macksoud

594AA–594ZZ. Special Topics. (1–4) I, II, III. The Staff
Prerequisite: Consent of Instructor.
Selected topics in accordance with instructors' specializations. Subject matter will be selected from same group as listed for 598 series. (May be repeated with a different topic for a maximum of 9 units.)

595AA–595ZZ. Group Studies (3) I, II, III. The Staff
Prerequisite: Consent of Instructor.
Critical review of research organized on a topic basis in accordance with instructors' specializations. Subject matter will be selected from same group as listed for 598 series. (May be repeated with a different topic for a maximum of 9 units.)

596AA–596ZZ. Directed Reading and Research. (2–4) I, II, III. The Staff
Prerequisite: Consent of Instructor.
Individual tutorial. A written proposal must be approved by the department chairman and filed with the Graduate Division. Subject matter will be selected from same group as listed for 598 series. (May be repeated for a maximum of 10 units.)

598AA–598ZZ. Master's Thesis and Research Preparation. (1–6) I, II, III. The Staff
Subject matter will be selected from the following list: Audiology: Mr. Gerber; Experimental Phonetics: Mr. Hanley; Speech Pathology: Miss Costello; Rhetorical Theory and Criticism: Mr. Mills, Mr. Quimby; Language and Interpretation: Mr. Macksoud; Experimental: Mr. Mulac; Historical: Mr. Palmer, Mr. Quimby; Speech Education: Mr. Schoell.

Related Courses in Another Department

Education SP 390. Curriculum and Instructional Procedures and Materials Used in the Teaching of Speech. (3) I.
Prerequisite: consent of instructor. Mr. Schoell

Education SP 390C. Curriculum and Instructional Procedures and Materials Used in the Teaching of Speech and Hearing. (3) I. Mr. Schoell
Prerequisites: Speech 175, 166 or 167 and 191.
Remedial methods for the speech and hearing handicapped in the public schools. Laboratory required. Required for state credential candidates.

Education SP 392A. Student Teaching: Speech. (3–6) I, II, III. Mr. Schoell

Education SP 392B. Student Teaching: Speech and Hearing. (3–6) I. Mr. Schoell
Prerequisites: Speech 191 and Education SP 290C.
Students must complete a total of 90 clock hours of actual teaching exclusive of observation.

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* Not to be given, 1971–72.

SUBJECT A

Charles J. Briody, III, M.A., *Lecturer, English as a Second Language.*
John C. Davie, M.A., *Associate in Subject A.*
Alison G. Elliott, M.A., *Associate in Subject A.*
Dennis H. Green, M.A., *Lecturer in Subject A.*
Jean E. Heywood, M.A., *Instruction Supervisor of Subject A.*
Eleanor A. Thompson, M.A., *Lecturer in Subject A.*
Laurel M. Walker, M.A., *Associate in Subject A.*

REGULATIONS

For regulations governing the Subject A requirement, see page 51. Fee $45.

Subject A. English Composition (no credit).
I, II, III. The Staff

Four hours weekly for one quarter. This course offers training in the study of English composition through a descriptive study of the English language with emphasis on usage, rhetoric, and style. Weekly compositions and other assignments enable students to develop writing skills.

Satisfaction of the Subject A requirement is prerequisite to enrollment in English 1A.

English as a Second Language 1A. (5)
I, II, III. Mr. Briody

Prerequisite: Qualifying score on English Language Examination. Conversational and written English for foreign students.

English as a Second Language 1B. (5)
I, II, III. Mr. Briody

Prerequisite: Qualifying score on English Language Examination. Conversational and written English for foreign students.

English as a Second Language 1C. (5)
II, III. Mr. Briody

Prerequisite: Qualifying score on English Language Examination. Conversational and written English for foreign students.

TUTORIAL PROGRAM

Committee in Charge

Walter Capps, Ph.D., *Associate Professor of Religious Studies.*
Gunther Gottschalk, Ph.D., *Associate Professor of German (Ex Officio).*
Patrizio Rossi, Ph.D., *Assistant Professor of Italian (Chairman).*
Lawrence Willson, Ph.D., *Professor of English.*

The purpose of the Tutorial Program is to offer a broad education in the liberal arts through an interdepartmental curriculum which allows the design of individual courses of study. The Tutorial Program emphasizes rigorous training in the arts of critical reading, discussion, and writing. The student in every Tutorial course (except Tutorial 1, where the requirement may be less) is required to present a minimum of 1,000 words of writing each week.

The province of the Tutorial Program is the study of interdisciplinary topics in the liberal arts. In the lower division, Tutorial 1, an introduction to tutorial methods, is offered in several seminars, which deal with various subjects. This course, not required, is open to freshmen. The Colloquia are electives for all upper division students. Tutorial 100 courses are open to all upper division students (although not in the departments of their majors) on the recommendation of the chairmen of the departments in which they are majoring.

Tutorial

All enrollment in Tutorial courses is subject to the approval of the instructor.

Lower Division Course

1. Introduction to Tutorial. (1) I, II, III. The Staff

Readings and essay-writing designed to acquaint new or prospective Tutorial majors with the nature and methods of the Tutorial Program. Freshmen.

Upper Division Courses

Colloquium. (4) I, II, III. The Staff

Formal discussion group with readings and essay-writing. Conducted by two instructors from different departments of knowledge.

Tutorial
100. (4) I, II, III. The Staff

Prerequisite: 8 units of Colloquia.
May be repeated for credit up to 36 units.
Tutors to be selected from the faculty according to the interests and requirements of the students.

199. Independent Studies (1–4) I, II, III. The Staff

Prerequisites: Departmental Approval.
Independent studies to enhance the student's background for his Tutorial theme.

The Santa Barbara Campus

GENERAL ADMINISTRATIVE OFFICERS AND PERSONNEL

President of the University
Charles J. Hitch

Chancellor
Vernon I. Cheadle

Provost, Emeritus
J. Harold Williams

Vice-Chancellors
John W. Snyder—*Executive Vice-Chancellor*
Stephen S. Goodspeed—*Administration*
Henry A. Turner—*Academic Affairs (Acting)*
C. Ray Varley—*Business and Isla Vista Affairs*
George E. Smith—*Student Services*

Assistant Chancellor
A. Dale Tomlinson—*Budget and Analysis*

Assistants to the Chancellor—Minority Affairs
Preston L. Dent (on leave 1971–72)
Ralph E. Herrera

Executive Assistant
Mrs. Madeline K. Joyce

University Librarian
Donald C. Davidson

Directors
William H. Allaway—*Education Abroad Program*
Wilfred T. Robbins—*Student Health Service*
Lewis F. Walton—*Summer Sessions*

Dean of Students
Lyle G. Reynolds, *Dean*
Associate Deans
Ellen E. Bowers, *Dean of Women*
Robert N. Evans, *Dean of Men*
Kollamala Mathai Mathew, *Dean of Foreign Students*
Margaret M. Getman, *Dean of Student Residents*
Leslie C. Meyers, *Dean of Student Activities*
William Fields, Jr., *Assocate Director, Educational Opportunity Program.*
William Villa, *Associate Director, Educational Opportunity Program.*

Counseling Center Manager
Ira Weinstein

Dean of Financial Aid
Mrs. John Harlan

Registrar
Joyce Cabot

Admissions Officer
Paul L. Scherer

Relations with Schools
Ralph K. Nair, *Associate Director*

Placement Office Manager
E. L. Chalberg

Housing Supervisor
Joan F. Mortell

Public Information Manager
E. George Obern

ADMINISTRATIVE OFFICERS OF THE COLLEGES, SCHOOLS, AND GRADUATE DIVISION AND EXTENSION

College of Letters and Science
Alec P. Alexander, *Dean*
Gunther A. Gottschalk, *Associate Dean*
Upton S. Palmer, *Associate Dean*
Clayton Wilson, *Associate Dean*

College of Creative Studies
Marvin Mudrick, *Provost*

College of Engineering
John D. Skalnik, *Dean*
William C. Kuby, *Associate Dean*

Graduate School of Education
Norman J. Boyan, *Dean*

Graduate Division
Robert O. Collins, *Dean*
Brian M. Fagan, *Associate Dean*

University Extension
George H. Daigneault, *Dean*

ORGANIZED RESEARCH UNITS

Bureau of Educational Research—Norman J. Boyan, *Acting Director*

Center for Black Studies—Melvin Wade, *Acting Director*

Center for Chicano Studies—Jesus Chavarria, *Director*

Center for the Study of Developing Nations—Alec P. Alexander, *Director*

Channel Islands Field Station—Robert M. Norris, *Director*

Community and Organization Research Institute—Alec P. Alexander, *Director*

Computer Center—Charles L. Loepkey, *Director*

Institute for Behavioral Sciences—Elijah P. Lovejoy, *Director*

Institute of Environmental Stress—Steven Horvath, *Director*

Institute of Religious Studies—Walter Capps, *Director*

Marine Science Institute—Robert W. Holmes, *Director*

Quantum Institute—Harold W. Lewis, *Director*

The University of California

REGENTS EX OFFICIO

RONALD REAGAN
Governor of California and President of The Regents
ED REINECKE
Lieutenant Governor of California
BOB MORETTI
Speaker of the Assembly
WILSON RILES
State Superintendent of Public Instruction
ALLAN GRANT
President of the State Board of Agriculture
JOSEPH A. MOORE, JR.
President of the Mechanics' Institute
*CHRISTIAN E. MARKEY, JR.
President of the Alumni Association of the University of California
CHARLES J. HITCH
President of the University

APPOINTED REGENTS**

EDWIN W. PAULEY (1972)
EDWARD W. CARTER (1982)
MRS. RANDOLPH A. HEARST (1974)
JOHN E. CANADAY (1974)
NORTON SIMON (1976)
WILLIAM E. FORBES (1978)
WILLIAM M. ROTH (1980)
MRS. EDWARD H. HELLER (1976)
Vice Chairman of the Board
FREDERICK G. DUTTON (1978)
WILLIAM K. COBLENTZ (1980)
DEWITT A. HIGGS (1982)
GLENN CAMPBELL (1984)
WILLIAM FRENCH SMITH (1986)
Chairman of the Board
ROBERT O. REYNOLDS (1986)
DEAN A. WATKINS (1984)
JOHN H. LAWRENCE, M.D. (1972)

PRINCIPAL OFFICERS OF THE REGENTS

THOMAS J. CUNNINGHAM
General Counsel
OWSLEY B. HAMMOND
Treasurer
MISS MARJORIE J. WOOLMAN
Secretary

OFFICE OF THE PRESIDENT

President of the University:
Charles J. Hitch
Vice President of the University:
Chester O. McCorkle, Jr.
Vice President of the University for Administration:
Robert L. Johnson
Vice President—Academic Affairs:
Angus E. Taylor
Vice President—Agricultural Sciences:
James B. Kendrick, Jr.
Vice President—Business and Finance:
John H. Stanford (Acting)
Vice President—Educational Relations:
Frank L. Kidner
Vice President—Planning and Analysis:
Joseph W. McGuire
Vice President—University Relations:
Travis Cross
Vice President—Public Service Programs and Dean of University Extension:
David P. Gardner

OFFICERS EMERITI

President of the University, Emeritus:
Robert Gordon Sproul
Vice President of the University, Emeritus, and Dean of the College of Agriculture, Emeritus:
Claude B. Hutchison
Vice President of the University, Emeritus
Harry R. Wellman
Vice President, Emeritus:
Robert M. Underhill
Vice President—Governmental Relations and Projects, Emeritus:
James H. Corley

CHANCELLORS

Chancellor at Berkeley:
Albert H. Bowker
Chancellor at Davis:
James H. Meyer
Chancellor at Irvine:
Daniel G. Aldrich, Jr.
Chancellor at Los Angeles:
Charles E. Young
Chancellor at Riverside:
Ivan H. Hinderaker
Chancellor at San Diego:
Herbert F. York (Acting)
Chancellor at San Francisco:
Philip R. Lee
Chancellor at Santa Barbara:
Vernon I. Cheadle
Chancellor at Santa Cruz:
Dean E. McHenry

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* William B. Keene, and Bert L. Smith are Regents Designate (non-voting).

** The names are arranged in order of original accession to the Board of Regents. The term of office of appointed Regents is sixteen years, with terms expiring on March 1 of the year indicated.

Santa Barbara*

OFFICERS OF INSTRUCTION

Staff for 1970–1971

Abbott, H. Porter, Ph.D., Assistant Professor of English. B.A., Reed College, 1962; M.A., University of Toronto, 1964, Ph.D., University of Toronto, 1968.

Adams, Henry M., Ph.D., Professor of History. A.B., Lehigh University, 1930; M.A., University of Southern California, 1934; Ph.D., Stanford University, 1937.

Adams, Larry L., M.A., Lecturer in Political Science. A.B., University of California (Santa Barbara), 1958; M.A., 1960.

Adams, Samuel, M.A., Lecturer in Physical Activities. A.B., University of California (Berkeley), 1954; M.A., University of California (Santa Barbara), 1961.

Addison, Michael C., Ph.D., Assistant Professor of Dramatic Art. B.A., Pomona College, Claremont, California, 1958; M.F.A., Tulane University, New Orleans, Louisiana, 1960, Ph.D., Stanford University, 1968.

Aggeler, William F., Ph.D., Professor of French, Emeritus. B.S., California Institute of Technology, 1925; M.A., University of California (Berkeley), 1932; Ph.D., 1939.

Aitken, David J., Ph.D., Assistant Professor of English. B.A., University of Wisconsin, 1955; M.A., Ph.D. Princeton University, 1962.

Akemann, Charles A., Ph.D., Associate Professor of Mathematics. B.A., Northwestern University, 1962; M.A., University of California (Berkeley), 1964; Ph.D. 1966.

Albarracin, Sarmiento, Carlos H., Professor en Letras, Lecturer in Spanish. B.A., Universidad de la Plata, 1944; Profesor en Letras, 1959.

Aldrich, Keith M., Ph.D., Professor of Classics. A.B. (English), University of Washington, 1950; A.B., (Classics), 1954; M.A. (Classics), Harvard, 1955; Ph.D., University of California (Berkeley), 1957.

Aldritt, Arthur J., M.A., Associate Supervisor of Physical Activities. A.B., University of California (Berkeley), 1957; M.A., UCB, 1965.

Alexander, Alec P., Ph.D., Professor of Economics. A.B., University of California (Berkeley), 1949; Ph.D., 1957.

Allen, Phillip E., Ph.D., Assistant Professor of Electrical Engineering. B.S.E.E., San Jose State College, 1962; M.S.E.E., San Jose State College, 1965; Ph.D., University of Kansas, 1970.

Alexander, William Henry, M.A., Acting Assistant Professor of History. B.A., Fisk University, Nashville, Tennessee, 1963; M.A. Stanford University, 1964.

Altus, William D., Ph.D., Professor of Psychology. A.B., B.S., Kansas State Teachers College (Emporia), 1930; M.A., 1932; Ph.D., New York University, 1941.

Alves, Marion P., M.A., Professor of Home Economics, Emeritus. B.S., University of Minnesota, 1936; M.A., 1941.

Anderson, Curtis B., Ph.D., Associate Professor of Chemistry. B.S., University of Minnesota, 1956; Ph.D., University of California (Los Angeles), 1963.

Anderson, Marian H., M.S., Associate Professor of Ergonomics and Physical Education, Emeritus. A.B., Pomona College, 1929; M.S., University of Southern California, 1952.

Anderson, Stanley V., Ph.D., Associate Professor of Political Science. A.B., University of California (Berkeley), 1949; LL.B., 1953; Ph.D., 1961.

Andron, Mortimer, Ph.D., Professor of Economics. A.B., University of California (Los Angeles), 1936; M.A., University of Oregon, 1939; Ph.D., University of Illinois, 1942.

Anyanuw, Kane C., M.A., Lecturer in Black Studies. B.A., University of Alcala, 1967; M.A., University of Alcala, 1968.

Aranguren, Jose Luis, Ph.D., Professor of Spanish. Ph.D., Facultad de Filosofia y Letras, University de Madrid, Spain.

Arntz, Michael A., M.A., Assistant Professor of Art. B.A., California State College (Long Beach), 1962; M.A., 1964.

Astley, Russell, M.A., Acting Assistant Professor of English. B.A., Temple University, 1961; M.A., 1967.

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* The *Catalog* contains the following list of the Officers of Instruction for 1970–1971, and listings, by departments, of known teaching staff for 1971–1972 with general information on courses of instruction pertaining to 1971–1972.

Athanassakis, Apostolos N., Ph.D., Assistant Professor of Classics. B.A. Lincoln University, 1961; M.A., University of Pennsylvania, 1962; Ph.D., 1965.

Atkins, Stuart P., Ph.D., Professor of German. A.B., Yale College, 1935; Ph.D., 1938.

Atkinson, Burnett, Lecturer in Music. B.A., Eastman School of Music, 1935; B.Mus., Curtis Institute of Music, 1938.

Aue, Donald H., Ph.D., Assistant Professor of Chemistry, B.Sc., Ohio State University, 1963; Ph.D., Cornell University, 1967.

Avila, Pablo, Ph.D., Associate Professor of Spanish. A.B., Stanford University, 1931; M.A., 1932; Ph.D., 1937.

Ayres, Larry M., Ph.D., Assistant Professor of Art, A.B., Dartmouth, 1964; B.Litt., University of Oxford (New College), 1966; Ph.D., Harvard, 1970.

Bachmuth, Seymour O., Ph.D., Associate Professor of Mathematics. B.S., Brooklyn College, 1955; M.A., 1957; Ph.D., Courant Institute of Mathematical Sciences, 1963.

Backus, Robert Lee, Ph.D., Assistant Professor of Japanese. B.A. in Spanish, University of Michigan, 1951; B.A. in East Asiatic Studies, University of California (Berkeley), 1955; M.A., 1960; Ph.D., 1963.

Badash, Lawrence, Ph.D., Assistant Professor of History. B.S., Rensselaer Polytechnic Institute, 1956; Ph.D., Yale University, 1964.

Baer, Kurt, Ph.D., Professor of Art, Emeritus. A.B., University of California (Berkeley), 1925; M.A., 1926; Ph.D., University of Southern California, 1936.

Baker, Bernard R., Ph.D., Professor of Chemistry. A.B., University of California (Los Angeles), 1937; Ph.D., University of Illinois, 1940.

Baker, Gordon E., Ph.D., Professor of Political Science. A.B., Reed College, 1948; M.A., University of Washington, 1949; Ph.D., Princeton University, 1952.

Balderston, Suzanne, B.Mus., Lecturer in Music. B.Mus., Oberlin Conservatory of Music, 1949.

Baldizan, Dick F., B.S., Junior Supervisor of Physical Activities; B.S., University of New Mexico, 1969.

Baldwin, John A., Ph.D., Professor of Electrical Engineering. A.B., University of California (Berkeley), 1951; Ph.D., 1956.

Baldwin, John D., Ph.D., Assistant Professor of Sociology. B.A., Johns Hopkins University, 1963; Ph.D., 1967.

Barkey, Ralph R., M.A., Lecturer in Physical Activities. A.B., University of California (Santa Barbara), 1958; M.A., 1963.

Barnett, Helen M., M.A., Professor of Music, Emeritus. A.B., University of California (Berkeley), 1938; M.A., University of Southern California, 1932.

Barraclough, Clifford A., M.A., Lecturer in German. A.B., University of Buffalo, 1949; M.A., University of Washington, 1952.

Barrett, Paul H., Ph.D., Professor of Physics. B.S., Montana State College, 1944; Ph.D., University of California (Berkeley), 1951.

Barrón, Carlos G., Ph.D., Assistant Professor of Spanish. B.A., University of California (Berkeley), 1955; M.A., 1961; Ph.D., University of California (Los Angeles), 1967.

Barrymore, Carroll, LL.B., Lecturer in Economics, B.A., University of Michigan, 1952; LL.B., 1954.

Bary, David A., Ph.D., Associate Professor of Spanish. A.B., University of California (Berkeley), 1948; M.A., 1950; Ph.D., 1956.

Beachboard, Robert, Docteur de l'Université de Paris, Associate Professor of French. A.B., Pennsylvania State University, 1932; Docteur de l'Université de Paris, 1939.

Bennett, Alva W., Ph.D., Associate Professor of Classics. A.B., University of California (Los Angeles), 1957; M.A., University of California (Berkeley), 1959; Ph.D., 1965.

Bergsohn, Isa Partsch, Lecturer in Dance. Diploma, Essen Folkwang Hochschule, 1951.

Bickerdike, Ernest L., Ph.D., Professor of Chemistry. A.B., University of Southern California, 1930; M.A., 1932; Ph.D., 1937.

Biester, Charlotte E., Ed.D., Professor of Home Economics, Emeritus. B.A., University of Illinois, 1921; M.A., Columbia University, 1939; Ed.D., Colorado State College, 1950.

Billigmeier, Robert H., Ph.D., Associate Professor of Sociology. A.B., Stanford University, 1938; M.A., University of California (Berkeley), 1939; Ph.D., Stanford University, 1951.

Blau, Sheridan, Ph.D., Assistant Professor of English. B.A., Rutgers University, 1960; M.A., Brandeis University, 1965; Ph.D., 1967.

Blum, Gerald S., Ph.D., Professor of Psychology. B.S., Rutgers University, 1941; M.A., Clark University, 1942; Ph.D., Stanford University, 1948.

Boehme, Thomas K., Ph.D., Professor of Mathematics. B.S., University of Oklahoma, 1952; M.S., 1957; Ph.D., California Institute of Technology, 1960.

Bonadeo, Alfredo A., Ph.D., Assistant Professor of Italian. B.S., University of California (Berkeley), 1955; M.B.A., University of California (Berkeley), 1957; Ph.D., University of California (Berkeley), 1965.

Bonadio, Felice A., Ph.D., Associate Professor of History. A.B., Johns Hopkins University, 1958; M.A., Yale University, 1959; Ph.D., 1964.

Borden, Morton, Ph.D., Professor of History. B.A., College of the City of New York, 1948; M.A., New York University, 1949; Ph.D., Columbia University, 1953.

Bossel, Hartmut H. R., Ph.D., Assist. Professor of Mechanical Engineering, Diplom-Ingenieur, Technische Hochschule Darmstadt, 1961; Ph.D., Univ. of Calif., Berkeley 1967.

Bouchard, Thomas J., Jr., Ph.D., Assistant Professor of Psychology. A.B., University of California (Berkeley), 1963; Ph.D., University of California (Berkeley), 1966.

Bowers, Edgar, Ph.D., Associate Professor of English. A.B., University of North Carolina, 1947; M.A., Stanford University, 1949; Ph.D., 1953.

Bowers, Michael T., Ph.D., Assistant Professor of Chemistry. B.S., Gonzaga University, 1962; Ph.D., University of Illinois, 1966.

Boyan, Norman J., Ed.D., Professor of Education, A.B., Bates College, 1943; A.M., Harvard University, 1947; Ed.D., Harvard University, 1951.

Boyd, Patricia P., M.A., Junior Supervisor of Physical Activities; B.A., Hunter College, New York, 1967; M.A., University of California, (Santa Barbara), 1970.

Bradley, Alice V., M.A., Professor of Home Economics, Emeritus. B.S., University of Wisconsin, 1915; M.A., Whittier College, 1933.

Branch, Watson, Ph.D., Assistant Professor of English. A.B., Princeton University, 1957; M.A., Northwestern University, 1967; Ph.D., 1970.

Brand, William F., Jr., M.S., Colonel Artillery, Professor of Military Science (Chairman of the Department). B.S., Virginia Military Institute, 1939; M.S., Penn. State College, 1940.

Brandts, Robert P., M.A., Lecturer in English. A.B., California State College (Long Beach), 1956; M.A., California State College (Long Beach), 1963.

Brandon, Betty, M.A., Lecturer in Black Studies. B.A., Fisk University, 1956; M.A., San Francisco State, 1961.

Brener, Roland, Lecturer in Art, Degrée in Fine Arts, Johanesburg, South Africa, 1963. Degree in Sculpture, St. Martins (London), 1965.

Breyfogle, Newell D., M.A., Assistant Supervisor of Physical Activities. B.S., University of Omaha, 1951; M.A., University of Iowa, 1957.

Briody, Charles Jerome III, Lecturer in English as a Second Language. A.B., St. John University, 1963; M.A., Columbia University, 1966; M.A., University of California (Los Angeles), 1968.

Broida, Herbert P., Ph.D., Professor of Physics. A.B., University of Colorado, 1944; M.A., Harvard University, 1945; Ph.D., 1949.

Brokensha, David W., D.Phil., Associate Professor of Anthropology. B.A., Rhodes University, South Africa, 1947; M.A., Cambridge, England, 1949; B. Litt., Oxford, England, 1950; D.Phil., 1963.

Brooks, Richard A., Ph.D., Assistant Professor of Electrical Engineering. B.S.E.E., University of Houston, 1962; M.S.E.E., New York University, 1964; Ph.D., University of California (Irvine), 1970.

Brown, Donald E., Ph.D., Assistant Professor of Anthropology. B.A., University of California, Los Angeles, 1963; M.A., 1964; Ph.D., Cornell University, 1969.

Brown, D. Mackenzie, Ph.D., Professor of South Asian Studies, Emeritus. A.B., Pomona College, 1929; M.A., Stanford University, 1931; Ph.D., 1935.

Brown, Gary, H., M.F.A., Assistant Professor of Art. B.A., DePauw University, Greencastle, Indiana, 1963; M.F.A., University of Wisconsin, Madison, Wisconsin, 1966.

Brown, George I., Ed.D., Professor of Education. A.B., University of New Hampshire, 1949; Ctf, University of London, 1949; Ed.M., University of New Hampshire, 1954; Ed.D., Harvard University, 1958.

Brownlee, W. E., Jr., Ph.D., Assistant Professor of History. B.A., Harvard University, 1963; M.A., University of Wisconsin, 1965, Ph.D., University of Wisconsin. 1968.

Browning, Lloyd, M.A., Professor of Music, Emeritus. B.Mus., Chicago Musical College, 1924; M.A., Claremont Graduate School, 1951.

Bruckner, Andrew M., Ph.D., Professor of Mathematics. A.B., University of California (Los Angeles), 1955; Ph.D., 1959.

Bruckner, Judith B., Ph.D., Lecturer in Psychology. B.A., University of California (Los Angeles), 1956; Ph.D., University of California (Los Angeles), 1960.

Bruch, John C., Ph.D., Assistant Professor of Engineering Mechanics. B.S.C.E., University of Notre Dame, 1962; M.S.C.E., Stanford University, 1963; Ph.D., 1966.

Bruice, Thomas C., Ph.D., Professor of Chemistry. B.S., University of Southern California, 1950; Ph.D., 1954.

Buchanan, A. Russell, Ph.D., Professor of History. A.B., Stanford University, 1927; M.A., 1928; Ph.D., 1935.

Bunton, Clifford A., Ph.D., Professor of Chemistry. B.S., University College, London, 1941; Ph.D., 1944.

Buoncristiani, Adrian O., M.A., Assistant Supervisor of Physical Activities. B.A., University of Santa Clara, 1962; M.A., California Polytechnic, 1965 and 1970.

Button, Sherman G., M.A., Assistant Supervisor of Physical Activities, B.A., Eastern Washington State College, Cheney, Washington, 1963; Certified Corrective Therapist Degree, Eastern Washington State College, 1967; M.A., Eastern Washington State College, Cheney, Washington, 1968.

Callow, Alexander Bates, Jr., Ph.D., Associate Professor of History. B.A., University of California (Santa Barbara), 1950; M.A., University of California (Berkeley), 1956; Ph.D., 1961.

Caldwell, David O., Ph.D., Professor of Physics. B.S., California Institute of Technology, 1947; M.A., University of California (Los Angeles), 1949; Ph.D., 1953.

Cambern, Michael J., Ph.D., Associate Professor of Mathematics. B.A., Harvard University, 1955; M.A., 1962; Ph.D., University of California (Berkeley), 1963.

Campbell, Albert, M.A., Lecturer in Music. M.A., University of Washington, 1959.

Campbell, Brenton K., Ph.D., Associate Professor of Spanish. A.B., Simpson College, 1950; Certificate of Russian, Syracuse University, 1952; Diploma di abilitazione all'insegnamento della Lingua italiana all'estero, Universita Italiana per stranigri, Perugia, Italy, 1955; Diploma en estudios hispánicos, Universidad de Granada, 1956; Certificat de langue francaise (degré avancé), Université de Paris (Sorbonne), 1956; Certificat d'études pratiques de prononciation francaise and certificat d'aptitude à l'enseignement du francais à l'étranger, Université de Paris, 1957; Ph.D., University of California (Berkeley), 1961.

Campbell, Catherine C., M.A., Professor of Art, Emeritus. B.E., University of California (Los Angeles), 1934; M.A., Claremont Colleges, 1943.

Cannell, David S., Ph.D., Assistant Professor of Physics. B.S., Massachusetts Institute of Technology, 1965; Ph.D., Massachusetts Institute of Technology, 1970.

Capps, Walter H., Ph.D., Associate Professor of Religious Studies. B.S., Portland State College, 1958; B.D., Augustana Theological Seminary, 1960; S.T.M., Yale University, 1961; M.A., 1963; Ph.D., 1965.

Carbon, John A., Ph.D., Professor of Biochemistry. B.Sc., University of Illinois, 1952; Ph.D., Northwestern University, 1955.

Carlisle, Harry J., Ph.D., Assistant Professor of Psychology. B.A., University of California (Santa Barbara), 1959; M.A., 1960; Ph.D., University of Washington, 1964.

Carlos, Manuel L., M.A., Lecturer in Anthropology. B.A., California State College of Los Angeles, 1962; M.A., Stanford University, 1965.

Carmalt, Carole C., M.A., Assistant Specialist in Speech and Hearing. A.B., University of Denver, 1963; M.A., Stanford University, 1965.

Carter, Ernest N., Ed.D., Supervisor of Physical Activities, Emeritus. A.B., Occidental College, 1927; M.A., Claremont Graduate School, 1952; Ed.D., University of California (Los Angeles), 1966.

Case, James F., Ph.D., Professor of Zoology. Ph.D., Johns Hopkins University, 1951.

Cassman, Marvin, Ph.D., Assistant Professor of Biochemistry. B.A., Univ. of Chicago, 1954; B.Sc., Univ. of Chicago, 1957; M.S., Univ. of Chicago, 1959; Ph.D., Albert Einstein School of Medicine, 1965.

Cavat, Irma, Associate Professor of Art.

Ceder, Jack, G., Ph.D., Associate Professor of Mathematics. B.S., University of Washington 1955; M.S., 1957; Ph.D., 1959.

Chaffee, Rowand R. J., Ph.D., Professor of Ergonomics and Physical Education. B.S., University of New Mexico, 1946; B.A., University of New Mexico, 1950; M.S., University of New Mexico, 1952; Ph.D., Harvard University, 1957.

Chambliss, William J., Ph.D., Associate Professor of Sociology. B.A., University of California (Los Angeles), 1955; M.A., Indiana University, 1960; Ph.D., 1962.

Chapman, Roger E., Ph.D., Associate Professor of Music. A.B., University of California (Los Angeles), 1937; M.A., 1950; Ph.D., 1954.

Charters, Alexander C., Jr., Ph.D., Lecturer in Mechanical Engineering B.S., 1934 California Institute of Technology; M.S., 1936, California Institute of Technology; Ph.D., 1938.

Chavarría, Jesús, Ph.D., Assistant Professor of History, B.A. University of California, Los Angeles, 1958; M.A., 1964; Ph.D., 1967.

Cheadle, Vernon I., Ph.D., Professor of Botany. A.B., University of Miami (Ohio), 1932; M.A., Harvard University, 1934; Ph.D., 1936.

Chen, C. Y., Ph.D., Assistant Professor of History. B.Ed., Taiwan Normal University, 1956; M.A., New Asia Research Institute, New Asia College, Hong Kong, 1958; A.M., Harvard University, 1962; Ph.D., 1967.

Childress, James J., Ph.D., Assistant Professor of Zoology. B.A., Wabash College of Indiana, 1964; Ph.D., Stanford University, 1969.

Chiodi, Hugo P., M.D., Ph.D., Professor of Ergonomics and Physical Education. M.D., University of Buenos Aires, 1935; Ph.D., Faculty of Medical Sciences of Buenos Aires, 1943.

Christy, Van A., Ph.D., Professor of Music, Emeritus. B.S., University of Missouri, 1926; M.A., Columbia University, 1931; Ph.D., 1940.

Clark, Joseph C., Ph.D., Assistant Professor of Geology. B.S., University of Texas, 1957; M.A., 1959, Ph.D., Stanford University, 1965.

Clarke, Howard, Ph.D., Professor of Comparative Literature. A.B., Holy Cross College, 1950; A.M., Harvard University, 1951; Ph.D., 1960.

Clopton, Ben M. Ph.D., Lecturer in Psychology. B.A., University of Texas, 1963; M.A., University of Texas, 1965; Ph.D., University of Washington, 1969.

Cloud, Preston E., Ph.D., Professor of Biogeology. B.A., George Washington University, 1938; Ph.D., Yale University, 1940.

Cogan, Carolyn N., B.A., Supervisor of Teacher Education. B.A., U.C.S.B., 1959.

Cole, Herbert M., Ph.D., Assistant Professor of Art. B.A., Williams College, 1957; M.A., Columbia University, 1964; Ph.D., 1968.

Collins, Robert O., Ph.D., Professor of History. B.A., Dartmouth, 1954; A.B., Balliol College, Oxford University, 1956; M.A., Yale University, 1958; Ph.D., 1959; M.A., Balliol College, Oxford University, 1960.

Comstock, W. Richard, Th.D., Associate Professor of Religious Studies. B.A., University of California (Berkeley), 1948; B.D., Princeton Theological Seminary, 1954; Th.M., 1959; Th.D., Union Theological Seminary, 1963.

Connell, Gary M., Ph.D., Assistant Professor of Mechanical Engineering. B.S., University of Notre Dame, 1961; M.S., University of New Mexico, 1963; Ph.D., University of California (Los Angeles), 1968.

Connell, Joseph H., Ph.D., Professor of Zoology. B.S., University of Chicago, 1946; M.A., University of California (Berkeley), 1953; Ph.D., University of Glasgow, 1956.

Conrad, Albert G., E.E., Professor of Electrical Engineering. B.E.E., Ohio State University, 1925; M.E.E., 1927; E.E., Yale University, 1931.

Corey, Kathleen N., M.A., Lecturer in Speech. A.B., University of California (Santa Barbara), 1964; M.A., 1966.

Cortright, Steven, M.A., Assistant Professor of Art. B.A., Stanford University, 1964; M.A., Stanford University, 1965.

Costello, Janis M., Ph.D., Assistant Professor of Speech. B.S., Northwestern University, 1964; M.A., University of Kansas, 1966; Ph.D. 1969.

Cote, Ronald G., M.A., Lecturer in Physical Activities. M.A., North Arizona University, 1965.

Cotton, John W., Ph.D., Professor of Education. A.B., Williamette University, 1947; M.A., Indiana University, 1950; Ph.D., 1952.

Coughlin, Hugh J., M.A., Associate in Religious Studies. B.S., University of Santa Clara, Santa Clara, Calif., 1955; M.A. in English, University of California (Berkeley), 1963; Ph.B., St. Albert's College, Oakland, Calif., 1962; License in Theol., University of Fribourg, Switzerland, 1967; M.A. in Religious Studies, University of California (Santa Barbara), 1970.

Cowles, Raymond B., Ph.D., Professor of Biology, Emeritus. B.A., Pomona, 1921; Ph.D., Cornell University, 1928.

Council, Norman B., Ph.D., Assistant Professor of English. A.B., University of the South, 1958; M.A., Stanford University, 1964; Ph.D., 1967.

Cressey, Donald R., Ph.D., Professor of Sociology. B.S., Iowa State University, 1943; Ph.D., Indiana University, 1950.

Crestfield, Arthur M., Ph.D., Associate Professor of Chemistry. B.A., University of California (Berkeley), 1949; Ph.D., 1954.

Cronshaw, James, Ph.D., Professor of Biology. B.Sc., University of Leeds, 1954; Ph.D., 1957.

Crouch, Robert L., Ph.D., Associate Professor of Economics. B.Sc., London School of Economics, 1958; M.A., University of California (Los Angeles), 1961; Ph.D., University of Essex, Colchester, England, 1967.

Crowell, John C., Ph.D., Professor of Geology. B.S., University of Texas, 1939; M.A., University of California (Los Angeles), 1946; Ph.D., University of California (Los Angeles), 1947.

Crowther, C. E., Rt. Rev., LL.M., Lecturer in Black Studies. B.A., University of Leeds, 1950; LL.B., University of Leeds, 1952; LL.M., University of Leeds, 1953.

Culler, Glen J., Ph.D., Professor of Electrical Engineering. A.B., University of California (Berkeley), 1951; Ph.D., University of California (Los Angeles), 1961.

Curtice, Jack C., M.A., Lecturer in Physical Activities. A.B., Transylvania University, 1930; M.A., Columbia University, 1938.

Cushing, Anne Greet, Ph.D., Associate Professor of French. A.B., Bryn Mawr College, 1950; M.A., Columbia University (English), 1954; M.A., Colorado University (French), 1957; Ph.D., 1961.

Cushing, John E., Ph.D., Professor of Immunology. A.B., University of California (Berkeley), 1938; Ph.D., California Institute of Technology, 1943.

Cybulski, Jerome S., M.A., Acting Assistant Professor of Anthropology. B.A., State University of New York at Buffalo, 1965; M.A., 1967.

Dangerfield, George B., M.A. (Oxon.), Lecturer in History, B.A. Oxford University, 1927; M.A., 1968.

Daniel, Erno, D.Pol.Sc., Professor of Music. State Teacher's Diploma, Franz Liszt Royal Academy of Music, Budapest, 1938; State Artist's Diploma, 1941; Doctor of Political Science, Royal University "Peter Pazmany," Budapest, 1944.

Dauer, Francis W., Ph.D., Assistant Professor of Philosophy. A.B., Dartmouth, 1960; M.A., Harvard, 1964; Ph.D., 1969.

Davenport, Demorest, Ph.D., Professor of Zoology. A.B., Harvard University, 1933; M.A., Colorado College, 1934; Ph.D., Harvard University, 1937.

Davidson, Donald C., Ph.D., Lecturer in History. A.B., University of British Columbia, 1933; M.A., University of California (Berkeley), 1934; Ph.D., 1937.

Davidson, Roger H., Ph.D., Associate Professor of Political Science. B.A., University of Colorado, 1958; Ph.D., Columbia University, 1963.

Davis, Terry E., M.S., Lecturer in Geology. B.A., University of California (Santa Barbara), 1959; M.S., University of Nevada, 1963.

Davis, Walter A., Ph.D., Assistant Professor of English. B.A., Marquette University, 1964; M.A., Marquette University, 1966; Ph.D., University of Chicago, 1969.

DeConde, Alexander, Ph.D., Professor of History. A.B., San Francisco State College, 1942; M.A., Stanford University, 1947; Ph.D., 1949.

Delattre, Geneviéve, Ph.D., Associate Professor of Education, Associate Professor of French. Licence de-lettres, University of Grenoble, 1947; M.A., Mount Holyoke College, 1950; Ph.D., Columbia University, 1960.

Del Chiaro, Mario A., Ph.D., F.A.A.R., Professor of Art. A.B., University of California (Berkeley), 1950; M.A., 1951; Ph.D., 1956.

DeNardo, Vincenzo, M.A., Lecturer in Italian. B.A., Universita di Roma, 1966; M.A., San Francisco State College, 1968.

DeWolfe, Barbara B., Ph.D., Professor of Zoology. A.B., University of California (Berkeley), 1933; Ph.D., 1939.

DeWolfe, Robert H., Ph.D., Associate Professor of Chemistry. B.S., University of Texas, 1950; M.A., 1951; Ph.D., 1953.

Djordjevic, Dimitrije, Ph.D., Professor of History. University degree, University of Beograd, Yugoslavia, 1954; Doctor's degree, 1962.

Dolan, James C., Ph.D., Assistant Professor of English. B.A., Canisius College, 1956; M.A., Canisius College, 1965; Ph.D., University of Illinois, 1968.

Dole, William E., M.A., Professor of Art.

A.B., Olivet College, 1938; M.A., University of California (Berkeley), 1947.

Dorra, Henri, Ph.D., Professor of Art. B.S., University of London, 1944; M.A., Harvard University, 1950; Ph.D., 1954.

Doty, Edward R., M.A., Lecturer in Physical Activities. A.B., University of California (Santa Barbara), 1943; M.A., University of Southern California, 1947.

Dozer, Donald M., Ph.D., Professor of History. A.B., College of Wooster, 1927; M.A., Harvard University, 1930; Ph.D., 1936.

Dunlap, Richard C., M.F.A., Lecturer in Art. B.A., University of Washington, 1966; M.F.A., 1968.

Durflinger, Glenn W., Ed.D., Professor of Education, Emeritus. A.B., Colorado State College of Education, 1926; M.A., 1931; Ed.D., University of Oregon, 1941.

Dutra, Francis A., Ph.D., Assistant Professor of History. B.A., St. Bonaventura University, New York, 1960; M.A., New York University, 1963, Ph.D., New York University, 1968.

Dvortcsak, Michael J., M.F.A., Assistant Professor of Art. B.A., University of California (Santa Barbara), 1961; M.F.A., 1967.

Ebeling, Alfred W., Ph.D., Associate Professor of Zoology. B.A., University of California (Los Angeles), 1953; Ph.D., University of California (Los Angeles & Scripps Institution of Oceanography), 1960.

Ebenstein, William, Ph.D., Professor of Political Science. Dr. of Law, University of Vienna, 1934; Ph.D., University of Wisconsin, 1938.

Eisberg, Robert M., Ph.D., Professor of Physics. B.S., University of Illinois, 1949; Ph.D., University of California (Berkeley), 1953.

Eliade, Mircea, Ph.D., Visiting Professor of Religious Studies. Sewell L. Avery Distinguished Service Professor, University of Chicago. M.A., University of Bucharest, 1928; Ph.D., 1933.

Elings, Virgil B., Ph.D., Assistant Professor of Physics. S.B., Iowa State University, 1961; Ph.D., Massachusetts Institute of Technology, 1965.

Ellenwood, Theodore S., Ed.D., Assistant Professor of Industrial Arts, Emeritus. A.B. San Jose State College, 1934; M.A., Claremont Colleges, 1950; Ed.D., University of California (Los Angeles), 1960.

Elliott, John R., Ph.D., Assistant Professor of English. A.B., Harvard University, 1958; M.A., University of California (Berkeley), 1960; Ph.D., 1964.

Elliott, Marianne W., M.S., Lecturer in Home Economics. B.S., University of California, Davis, 1967, M.S., Texas Women's University 1968.

Englesberg, Ellis, Ph.D., Professor of Microbiology, B.A., Brooklyn College, 1946; M.A., University of California (Berkeley), 1948; Ph.D., 1950.

Erasmus, Charles J., Ph.D., Professor of Anthropology. A.B., University of California (Los Angeles), 1942; M.A., University of California (Berkeley), 1950; Ph.D., 1955.

Erickson, Mary M., Ph.D., Professor of Zoology. A.B., Willamette University, 1927; M.A., University of California (Berkeley), 1929; Ph.D., 1935.

Erickson, Robert A., Ph.D., Assistant Professor of English. A.B., Boston University, 1962; M.A., Yale University, 1963; Ph.D., 1967.

Ernest, John A., Ph.D., Professor of Mathematics. B.A., Drew University, 1957; M.S., University of Illinois, 1958; Ph.D., 1960.

Esau, Katherine, Ph.D., Professor of Botany, Emeritus. Grad., Agricultural College (Berlin), 1922; Ph.D., University of California (Berkeley), 1931; Honorary D.Sc., Mills College, 1962.

Estes, John E., Ph.D., Assistant Professor of Geography. A.A., San Diego Jr. College; A.B., San Diego State, 1962; M.A., San Diego State College, 1963; Ph.D., University of California (Los Angeles), 1969.

Evans, Elliott, M.A., Lecturer in English. A.B., Xavier University, 1960; M.A., University of Chicago, 1965.

Everest, Andrew S., M.A., Lecturer (Assistant Intercollegiate Athletics Director) B.A., Texas Western College, 1950; M.A., 1951.

Exner, Richard, Ph.D., Professor of German. A.B., University of Southern California, 1951; Ph.D., 1957.

Fagan, Brian M., Ph.D., Associate Professor of Anthropology. B.A., Pembroke College, Cambridge, England, 1959; M.A., 1963; Ph.D., 1963.

Fan, Ky, Docteur-es-Sciences Mathématiques, Professor of Mathematics. B.S., National Peking University, 1936; Docteur-es-Sciences Mathématiques, University of Paris, 1941.

Farr, Vincent P., M.A., Associate in Spanish. A.B., San Francisco State College, 1964; M.A., 1966.

Farrar, David, M.A., Associate in Music. M.A., University of California (Santa Barbara), 1968.

Farwell, Beatrice, M.A., Lecturer in Art. B.A., Knox College, Galesburg, Illinois, 1942; M.A., New York University, Institute of Fine Arts, New York, N.Y., 1965.

Faulkner, Maurice E., Ph.D., Professor of Music. B.S., Fort Hays Kansas State College, 1932; M.A., Columbia University, 1936; Ph.D., Stanford University, 1956.

Fenech, Henri J., Sc.D., Professor of Nuclear Engineering. Diploma of "Ingenieur Arts and Métiers," Ecole Nationale Supérieure des Arts et Métiers, France, 1946; M.S., Massachusetts Institute of Technology, 1957; Sc.D., 1969.

Fenton, Howard C., M.A., Professor of Art. A.B., University of California (Los Angeles), 1947; M.A., 1948.

Ferguson, Suzanne C., Assistant Professor of English. B.A., Converse College, 1960; M.A., Vanderbilt University, 1961; Ph.D., Stanford University, 1966.

Ferrell, Richard A., Ph.D., Visiting Professor of Physics. B.S., California Institute of Technology, 1948; M.S., California Institute of Technology, 1949; Ph.D., Princeton University, 1952.

Fingarette, Herbert, Ph.D., Professor of Philosophy. A.B., University of California (Los Angeles), 1947; Ph.D., 1949.

Fishbein, Michael, M.A., Acting Assistant Professor of English. B.A., Columbia University, 1963; M.A., Yale University, 1967.

Fisher, Richard V., Ph.D., Professor of Geology. A.B., Occidental College, 1952; Ph.D., University of Washington, 1957.

Fisher, Sethard, Ph.D., Associate Professor of Sociology. A.B., University of California (Berkeley), 1953; M.A., 1958; Ph.D., 1960.

Fitzgibbon, Russell H., Ph.D., LL.D., Professor of Political Science. A.B., Hanover College, 1924; M.A., Indiana University, 1928; Ph.D., University of Wisconsin, 1933; LL.D., 1952.

Flacks, Richard, Ph.D., Associate Professor in Sociology. A.B., Brooklyn College, 1958; Ph.D., University of Michigan, 1964.

Fleming, B. Noel, Ph.D., Professor of Philosophy. A.B., Harvard University, 1950; Ph.D., Oxford, 1961.

Fleming, Noel, D.Phil. (Oxon), Professor of Philosophy. A.B., Harvard University, 1950; D.Phil, Oxford, 1961.

Fleming, A. William, M.Ed., Assistant Supervisor of Physical Activities. B.S., University of Illinois, 1964; M.Ed., University of Arizona, 1965.

Flint, M. Marilyn, Ph.D., Associate Professor of Ergonomics and Physical Education. B.S., University of Wyoming, 1943; M.A., 1949; Ph.D., State University of Iowa, 1955.

Foladare, Joseph, Ph.D., Professor of English. B.S., California Institute of Technology, 1930; M.A., Claremont Colleges, 1931; Ph.D., Yale University, 1936.

Foley, John M., Ph.D., Assistant Professor of Psychology. A.B., University of Notre Dame, 1958; Ph.D., Columbia University, 1963.

Fontana, Jorge R., Ph.D., Associate Professor of Electrical Engineering. B.S., Massachusetts Institute of Technology, 1952; M.S., 1954; Ph.D., Stanford University, 1960.

Ford, Peter C., Ph.D., Assistant Professor of Chemistry. B.S., California Institute of Technology, 1962; M.S., Yale University, 1963; Ph.D., 1966.

Forgie, J. William, Ph.D., Assistant Professor of Philosophy. B.A., Amherst College, 1960; Ph.D., Cornell University, 1968.

Friedell, Morris F., Ph.D., Associate Professor in Sociology. B.S., University of Chicago, 1959; M.A., 1963; Ph.D., 1965.

Fricker, Peter R., F.R.C.O., Professor of Music. A.R.C.M., Royal College of Music, 1939; F.R.C.O., 1939; Hon. Doc. Mus., University of Leeds.

Fridell, Wilbur M., Ph.D., Assistant Professor of Religious Studies. B.A., University of Redlands, 1942; M.A., University of California, Berkeley, 1963; Ph.D., 1966.

Friesen, Abraham, Ph.D., Assistant Professor of History. B.A., University of Manitoba, Winnipeg, Canada, 1957; M.A., University of Manitoba, 1962; Ph.D., Stanford University, 1967.

Frost, Frank J., Ph.D., Associate Professor of History. B.A., University of California (Santa Barbara), 1955; M.A., University of California (Los Angeles), 1959; Ph.D., 1961.

Frost, William, Ph.D., Professor of English. A.B., Bowdoin College, 1938; M.A., Columbia University, 1942; Ph.D., Yale University, 1946.

Fruhauf, Ennis, M.M., Assistant Professor of Music. M.M., University of Michigan, 1968.

Fuentes, Victor, Ph.D., Assistant Professor of Spanish. B.A., New York University, 1959; M.A., 1961; Ph.D., 1965.

Fukui, Haruhiro, Ph.D., Assistant Professor of Political Science, B.A., Tokyo University of Foreign Studies, 1957; M.A., Tokyo University, 1961; Ph.D., Australian National University, Canberra, 1968.

Fulco, Jose R., Ph.D., Professor of Physics. Ch.E., Escuela Superior Tecnica (Buenos Aires), 1955; Ph.D., University of Buenos Aires, 1962.

Fuller, Richard G., M.A., Lt. Colonel, Armor, Associate Professor of Military Science. B.S., University of Maryland, 1961; M.A., Arizona State University, 1967.

Gallo, Marta, Profesora en Letras, Lecturer in Spanish. Profesora en Letra, Facultad de Filosofía y Letras, Universidad de Buenos Aires, 1951.

Gallon, Arthur J., Ed.D., Supervisor of Physical Activities. A.B., Willamette University, 1939; M.A., 1940; Ed.D., University of California (Berkeley), 1954.

Gardiner, Frank C., Ph.D., Assistant Professor of English. B.A., Southwestern State College, 1949; M.A., University of Oklahoma, 1959; Ph.D., University of Oregon, 1965.

Gary, Robert H., M.A., Assistant Supervisor of Physical Activities. B.A., University of California (Santa Barbara), 1961; M.A., University of California (Santa Barbara), 1968.

Gazzaniga, Michael S., Ph.D., Assistant Professor of Psychology. A.B., Dartmouth College, 1961; Ph.D., California Institute of Technology, 1964.

Gebhard, David S., Ph.D., Professor of Art, A.B., University of Minnesota, 1949; M.A., 1951; Ph.D., 1958.

Geiringer, Karl, Ph.D., Professor of Music. Ph.D., Universities of Vienna and Berlin, 1923.

Gerig, J. Thomas C., Ph.D., Assistant Professor of Chemistry. B.A., College of Wooster, 1960; Ph.D., Brown University, 1964.

Gerber, Sanford E., Ph.D., Associate Professor of Speech. B.A., Lake Forest College, 1954; M.S., University of Illinois, 1956; Ph.D., University of Southern California, 1962.

Gerstein, Larry J., Ph.D., Assistant Professor of Mathematics. A.B., Columbia College, 1962; M.S., University of Notre Dame, 1963; Ph.D., 1967.

Geuss, Sanford L., B.A., Assistant Supervisor of Physical Activities (Men's Intramurals Director). B.A., San Fernando Valley State College, 1965.

Gibor, Aharon, Ph.D., Professor of Biology. B.A., University of California (Berkeley), 1951; M.A., 1952; Ph.D., Stanford University, 1955.

Gillespie, John E., Ph.D., Professor of Music. A.B., DePauw University, 1941; M.A., University of Southern California, 1948; Ph.D., 1951.

Givan, Christopher, Ph.D., Assistant Professor of English. B.A., Yale University, 1966; M.A., Stanford University, 1968; Ph.D., 1970.

Girvetz, Harry K., Ph.D., Professor of Philosophy. A.B., Stanford University, 1931; M.A., 1933; Ph.D., University of California (Berkeley), 1937.

Glasman, Naftaly S., Ph.D., Assistant Professor of Education. B.A., Wesleyan University, 1962; M.A., University of California (Berkeley), 1964; Ph.D., University of California (Berkeley), 1968.

Glassow, Michael A., M.A., Acting Assistant Professor of Anthropology. B.A., University of California (Los Angeles), 1963; M.A., 1965.

Glenn, Stanley L., Ph.D., Professor of Dramatic Art. A.B., University of California (Los Angeles), 1948; M.A., 1949; Ph.D., Stanford University, 1955.

Glosser, Robert, Ph.D., Lecturer in Physics. S.B., Massachusetts Institute of Technology, 1959; S.M., University of Chicago, 1962; Ph.D., 1967.

Gogel, Walter C., Ph.D., Professor of Psychology. A.B., Marietta College, 1948; Ph.D., University of Chicago, 1951.

Gold, David, Ph.D., Professor of Sociology. A.B., University of Iowa, 1947; M.A., 1948; Ph.D., University of Chicago, 1953.

Gollin, Alfred M., D.Litt., D.Phil. (Oxon.), Professor of History. B.A., New College, Oxford, 1951; M.A., St. Anthony's College, Oxford, 1952; D.Phil. (Oxon.), 1957; D.Litt. (Oxon.), 1968.

Gollner, Theodore W., Ph.D., Associate Professor of Music. Ph.D., University of Heidelberg, 1957; phil. habil., University of Munich, 1967.

Goodrich, Chauncey S., Ph.D., Associate Professor of Classical Chinese. A.B., Yale University, 1942; M.A., University of California (Berkeley), 1951; Ph.D., 1957.

Goodspeed, Stephen S., Ph.D., Professor of Political Science. A.B., University of California (Berkeley), 1936; Ph.D., 1947.

Gordon, Michael R., Ph.D., Assistant Professor of Political Science. A.B., Stanford University, 1961; B.A., Oxford University, 1963; M.P.A., Harvard University, 1965; Ph.D., Harvard University, 1966.

Gorrie, David, M.S., Lecturer in Physical Activities. A.B., University of California (Santa Barbara), 1953; M.S., University of Southern California, 1959.

Gosenfeld, Norman H., M.A., Lecturer in Geography. B.A., University of California (Los Angeles), 1955; M.A., University of California (Los Angeles), 1965.

Gottschalk, Gunther H., Ph.D., Associate Professor of German. A.B., University of Arkansas, 1953; M.A. University of Southern California, 1961; Ph.D., 1963.

Gottsdanker, Robert M., Ph.D., Professor of Psychology. A.B., University of California (Berkeley), 1938; Ph.D., 1941.

Graham, Otis L., Jr., Ph.D., Associate Professor of History. B.A., Yale University, 1957; M.A., Columbia University, 1961; Ph.D., 1966.

Grant, Armando D., B.A., Lecturer in Spanish. B.A., University of the Americas, 1959.

Gray, Augustine H., Jr., Ph.D., Associate Professor of Electrical Engineering. S.B., Massachusetts Institute of Technology, 1959; S.M., 1959; Ph.D., California Institute of Technology, 1964.

Green, Dennis H., B.A., Lecturer of Subject A., University of California (Santa Barbara), 1964; M.A., 1966.

Greene, Naomi, Ph.D., Assistant Professor of French. A.B., Pembroke College, Brown University, 1963; M.A., New York University, 1964; Ph.D., 1967.

Griffin, Fred L., A.B., Assistant Professor of Industrial Arts, Emeritus. A.B., Santa Barbara State Teachers College, 1927.

Grove, Roger D., M.M., Assistant Professor of Music. B.Mus., University of Tulsa, 1960; M.M., 1962.

Gross, Franz L., Ph.D., Visiting Associate Professor of Physics. B.A., Swarthmore College, 1958; Ph.D., Princeton University, 1963.

Guss, Donald L., Ph.D., Professor of English. B.S.S., City College of New York, 1950; A.M., Columbia University, 1952; Ph.D., University of Wisconsin, 1961.

Haddad, George M., Ph.D., Professor of History. A.B., American University of Beirut, 1929; Lic. Lett., University of Paris (Sorbonne), 1934; Ph.D., University of Chicago, 1949.

Haiman, Richard L., M.A., Lecturer in Geography. A.B., San Diego State College, 1963; M.A., San Diego State College, 1965; C. Phil., University of California (Los Angeles), 1970.

Hall, Leonard H., Ph.D., Associate Professor of Physics. A.B., University of California (Los Angeles), 1938; Ph.D., Brown University, 1947.

Haller, John R., Ph.D., Associate Professor of Botany. A.B., University of California (Los Angeles), 1952; Ph.D., 1957.

Halterman, J. Frederick, Ph.D., Professor of Economics, Emeritus. B.S., University of California (Berkeley), 1929; M.S., 1930; Ph.D., 1935.

Hambor, John C., Ph.D., Assistant Professor of Economics. B.A., San Fernando Valley State, 1962; M.A., University of Michigan, 1965, Ph.D., University of Michigan, 1968.

Hammer, Willard M., Ed.D., Supervisor of Physical Activities. B.S., Springfield College, 1949; M.Ed., 1950; Ed.D., University of Oregon, 1963.

Hanley, Theodore D., Ph.D., Professor of Speech. A.B., University of California (Santa Barbara), 1940; M.A., 1942; Ph.D., The State University of Iowa, 1949.

Hanrieder, Wolfram, Ph.D., Associate Professor of Political Science. A.B., University of Chicago, 1958; M.A., University of Chicago, 1959; Ph.D., University of California (Berkeley), 1963.

Hanna, Owen T., Ph.D., Associate Professor of Chemical Engineering. B.S., Purdue University, 1957; Ph.D., 1961.

Harbury, Henry A., Ph.D., Professor of Biochemistry. B.A., Cornell University, 1947; Ph.D., Johns Hopkins University, 1953.

Harder, Theodore, Ed.D., Professor of Ergonomics and Physical Education. A.B., Stanford University, 1929; M.A., 1943; Ed.D., University of Oregon, 1949.

Hardin, Garrett J., Ph.D., Professor of Human Ecology. B.S., University of Chicago, 1936; Ph.D., Stanford University, 1941.

Harding, Thomas G., Ph.D., Associate Professor of Anthropology. A.B., University of Michigan, 1958; M.A., 1960; Ph.D., 1965.

Hargadine, Mrs. Martha P., M.A., Junior Supervisor of Physical Activities. B.A., University of California (Santa Barbara), 1960; M.A., University of Utah, 1965.

Harris, Carl V., Ph.D., Assistant Professor of History. B.A., McPherson College, McPherson, Kansas, 1959; M.A., University of Wisconsin, 1965; Ph.D., University of Wisconsin, 1969.

Harris, Chester W., Ph.D., Professor of Education. A.B., University of Denver (Denver, Colorado), 1931; Ph.D., University of Chicago, Chicago Illinois, 1946.

Harris, David O., Ph.D., Assistant Professor of Chemistry. B.S., Oregon State University, 1961; Ph.D., University of California (Berkeley), 1965.

Harris, Richard, Ph.D., Assistant Professor of Political Science. B.A., University of California (Los Angeles), 1961; M.P.A., 1963; Ph.D., UCLA, 1967.

Hartle, James B., Ph.D., Associate Professor of Physics. A.B., Princeton University, 1960. Ph.D., California Institute of Technology, 1964.

Hartley, Ruth N., Ed.D., Assistant Professor of Education. B.A., Westmar College, 1950; B.S., Eastern Montana College of Education, 1952; M.S., Eastern Montana College of Education, 1960; Ed.D., Stanford University, 1968.

Hatch, Elvin J., Ph.D., Assistant Professor of Anthropology. A.B., Fresno State College, 1959; Ph.D., University of California (Los Angeles), 1968.

Hathaway, Ronald F., Ph.D., Assistant Professor of Philosophy. B.A., Harvard University, 1959; M.A., Brandeis University, 1961; Ph.D., 1965.

Hatlen, Theodore W., Ph.D., Professor of Dramatic Art. A.B., University of Redlands, 1934; M.A., Cornell University, 1935; Ph.D., Stanford University, 1950.

Hawkins, Alice M., Ph.D., Assistant Professor of Psychology. A.B., Iowa Wesleyan College, 1954; M.A., State University of Iowa, 1957; Ph.D., 1961.

Hay, Stephen N., Ph.D., Associate Professor of History. B.A., Swarthmore College, 1951; M.A., Harvard University, 1953; Ph.D., 1957.

Heald, David L., Acting Assistant Professor of Electrical Engineering. B.S., University of California (Santa Barbara), 1965; M.S., University of California (Santa Barbara), 1967.

Helgerson, Richard, Ph.D., Assistant Professor of English. B.A., University of California (Riverside), 1963; M.A., Johns Hopkins University, 1964; Ph.D., 1970.

Heidbreder, Glenn R., D.Engr., Associate Professor of Electrical Engineering. B.E., Yale University, 1951; M.Engr., 1956; D.Engr., 1959.

Hetrick, Carl C., Ph.D., Assistant Professor of Political Science. B.A., Ohio State University, 1959; M.A., University of Chicago, 1961; Ph.D., University of Washington, 1966.

Hetzron, Robert, Ph.D., Associate Professor of Hebrew. M.A., The Hebrew University, 1964; Ph.D., University of California (Los Angeles), 1966.

Heywood, Jean E., M.A., Supervisor of Subject A. A.B., University of Toronto, 1945; M.A., 1946.

Hickman, Roy S., Ph.D., Associate Professor of Mechanical Engineering. B.S., University of California (Berkeley), 1957; Ph.D., 1962.

Hidalgo, Richard L., B.A., Major, Infantry, Associate Professor of Military Science. B.A., University of California (Santa Barbara), 1962.

Higgins, Jerry W., Ph.D., Associate Professor of Psychology. A.B., University of Toronto, 1959; M.A., University of Michigan, 1962; Ph.D., 1964.

Hill, Cecil, Ph.D., Assistant Professor of Music. B.M., University of Durham, 1962; Ph.D., University of St. Andrews, 1967.

Hodgkins, Jean L., Ed.D., Profesor of Ergonomics and Physical Education. B.E., University of California (Los Angeles), 1936; M.A., Columbia University, 1937; Ed.D., 1952.

Hollister, C. Warren, Ph.D., Professor of History. A.B., Harvard University, 1951; M.A., University of California (Los Angeles), 1957; Ph.D., 1958.

Holmes, Robert W., Ph.D., Associate Professor of Marine Biology. B.S., Haverford College, 1949; M.S., University of California Scripps Institute of Oceanography, 1962; Ph.D., University of Oslo, 1966.

Holmes, William N., Ph.D., Professor of Zoology. B.S., University of Liverpool, 1952; M.S., University of Liverpool, 1954; Ph.D., University of Liverpool, 1957, D.Sc., University of Liverpool, 1968.

Holtrop, William F., Ed.D., Lecturer in Dutch and German and Associate Professor of Industrial Arts. B.S., Nebraska State Teachers College (Kearney), 1936; M.Ed., University of Missouri, 1938; Ed.D., University of California (Los Angeles), 1948.

Hone, Daniel W., Ph.D., Associate Professor of Physics. A.B., University of California (Berkeley), 1958; M.S., University of Illinois, 1960; Ph.D., 1962.

Hooker, Thomas M. Jr., Ph.D., Assistant Professor of Chemistry. A.B., University of Kentucky, 1958, B.S.; 1961; M.S., University of Missouri, 1966; Ph.D., Duke University, 1967.

Houghton, Miss Bobbi L., M.S., Junior Supervisor of Physical Activities. B.A., Fresno State College, 1968; M.S., San Jose State College, 1969.

Houlgate, Laurence D., Ph.D., Assistant Professor of Philosophy. B.A., Los Angeles State College, 1961; M.A., University of California (Los Angeles), 1965; Ph.D. 1967.

Hopson, Clifford A., Ph.D., Professor of Geology. B.S., Stanford University, 1951; Ph.D., Johns Hopkins University, 1955.

Horvath, Steven M., Ph.D., Professor of Electrical Engineering, Ergonomics and Physical Education. B.S., Miami University (Ohio), 1934; M.S., 1935; Ph.D., Harvard University, 1943.

Hosford, Ray E., Ph.D., Associate Professor of Education. B.A., Central Washington State College, 1955; M.A., Central Washington State College, 1959; Ph.D., Stanford University, 1966.

Howard, James A., Ph.D., Assistant Professor of Electrical Engineering. B.S., University of California (Los Angeles), 1956; M.S., 1959; Ph.D.; 1967.

Hsu, Dolores M., Ph.D., Associate Professor of Music. B.Mus., Lewis and Clark College, Portland, 1952; Ph.D., University of Southern California, 1962.

Hsu, Immanuel C. Y., Ph.D., Professor of History. A.B., Yenching University, 1946; M.A., University of Minnesota, 1950; Ph.D., Harvard University, 1954.

Hudson, William N., Ph.D., Lecturer in Mathematics. A.B., University of California (Berkeley), 1960; M.A., 1963; Ph.D., University of California (Irvine), 1970.

Hughes, James S., B.S., Captain, Infantry, U. S. Army, Assistant Professor of Military Science. B.S., United States Military Academy, 1963.

Hyde, Gavin, M.A., Lecturer in Spanish. B.A., University of California (Santa Barbara), 1951; M.A., 1965.

Irish, Elizabeth H., Ed.D., Associate Professor of Education, Emeritus. A.B., Arizona State College (Flagstaff), 1937; M.A., 1938; Ed.D., Stanford University, 1948.

Iyer, Nandini, M.A., (Oxon.), Assistant Professor of Philosophy. B.A., Bombay University, 1952; B.A., Oxford University, 1955; M.A., 1959.

Iyer, Raghavan N., D.Phil., Associate Professor of Political Science. B.A., University of Bombay, 1948; M.A., 1950; B.A., Oxford, 1953; M.A., 1956; D.Phil., 1962.

Jaccarino, Vincent, Ph.D., Professor of Physics. B.S., Brooklyn College, 1948; Ph.D., Massachusetts Institute of Technology, 1952.

Jacobs, Charles L., Ph.D., Professor of Education, Emeritus. A.B., Columbia University, 1905; M.A., Stanford University, 1912; Ph.D., Columbia University, 1927.

Jacobs, Gerald H., Ph.D., Associate Professor of Psychology. A.B., University of Vermont, 1956; Ph.D., Indiana University, 1963.

Jacobs, Wilbur R., Ph.D., Professor of History. A.B., University of California (Los Angeles), 1940; M.A., 1942; Ph.D., 1947.

Jahadhmy, Ali Ahmed, Lecturer in Swahili.

Jaimes-Freyre, Mireya, Ph.D., Associate Professor of Spanish. B.A. (Spanish, French), University of Leeds, 1951; M.A. (Spanish), University of California (Berkeley), 1952; Ph.D., Columbia University, 1965.

Jamgochian, Richard, Jr., Lecturer in Education and Coordinator of Supervised Teaching (Elementary Schools). B.Ed., Chicago Teachers College, 1954; M.A., De Paul University, 1956; Ph.D., University of Chicago, 1964.

Jarvaise, James J., M.F.A., Lecturer in Art. B.F.A., University of Southern California, 1952; M.F.A., 1954.

Johnsen, Eugene C., Ph.D., Associate Professor of Mathematics. B.Chem., University of Minnesota, 1954; Ph.D., Ohio State University, 1961.

Johnson, M. Bruce, Ph.D., Associate Professor of Economics. B.A., Carleton College, 1955; M.A., Northwestern University, 1960; Ph.D., Northwestern University, 1962.

Johnson, Donald Barton, Ph.D., Assistant Professor of Russian. A.B., Indiana University, 1954; M.A., University of California (Berkeley), 1958; Ph.D., University of California (Los Angeles), 1966.

Johnson, C. Douglas, Ph.D., Assistant Professor of Linguistics. B.A., University of California (Berkeley), 1954; Ph.D., University of California (Berkeley), 1970.

Jones, Evelyn M., Ph.D., Professor of Home Economics. B.S., University of California (Los Angeles), 1944; M.S., 1952; Ph.D., University of Wisconsin, 1956.

Jones, William E., B.S., Junior Supervisor in Physical Activities. B.S., University of Maryland, 1969.

Jordan, Borimir, Ph.D., Assistant Professor of Classics. B.A., University of California (Berkeley), 1955; Ph.D., 1968.

Kaganoff, Sheldon A., M.F.A., Assistant Professor of Art. B.A., Pomona College, 1959; M.F.A., Claremont College, 1961.

Kanter, James, B.A., Lecturer in Music. B.A., San Fernando Valley State College, 1966.

Kaska, William C., Ph.D., Assistant Professor of Chemistry. B.S., Loyola University, 1957; Ph.D., University of Michigan, 1963.

Kaspin, Albert, Ph.D., Associate Professor of Russian. B.A., University of California (Berkeley), 1949; M.A., 1952; Ph.D., 1957.

Keener, Clyde, Ed.D., Assistant Professor of Industrial Arts, Emeritus. A.B., University of California (Santa Barbara), 1943; M.A., Claremont Colleges, 1950; Ed.D., University of California (Los Angeles), 1959.

Keener, Helen E., Ph.D., Professor of Biology, Emeritus. A.B., Pomona College, 1928; M.A., Claremont Colleges, 1930; Ph.D., University of Chicago, 1937.

Kelley, Robert L., Ph.D., Professor of History. A.B., University of California (Santa Barbara), 1948; M.A., Stanford University, 1949; Ph.D., 1953.

Kelliher, Mayville S., Ed.D., Supervisor of Physical Activities. A.B., Santa Barbara State Teachers College, 1934; M.S., University of Oregon, 1948; Ed.D., 1955.

Kelly, John R., Ph.D., Assistant Professor of Spanish. B.A., Mexico City College, 1961; M.A., University of Southern California, 1964; Ph.D., 1967.

Kelly, Paul J., Ph.D., Professor of Mathematics. A.B., University of California (Los Angeles), 1937; M.A., 1939; Ph.D., University of Wisconsin, 1942.

Kendall, Burton N., Ph.D., Lecturer in Physics. B.S., Stanford University, 1962; Ph.D., Brown University, 1969.

Kendler, Howard H., Ph.D., Professor of Psychology. A.B. Brooklyn College, 1940; M.A., State University of Iowa, 1941; Ph.D., 1943.

Kendler, Tracy S., Ph.D., Professor of Psychology. A.B., Brooklyn College, 1940; M.A., State University of Iowa, 1942; Ph.D., 1943.

Kennedy, John H., Ph.D., Assistant Professor of Chemistry. B.S., University of California (Los Angeles), 1954; M.A., Harvard University, 1956; Ph.D., 1957.

Kennedy, William F., Ph.D., Professor of Economics. A.B., Columbia University, 1933; M.A., 1936; Ph.D., University of Wisconsin, 1941.

Kenner, W. Hugh, Ph.D., F.R.S.L., Professor of English. A.B., University of Toronto, 1945; M.A., 1946; Ph.D., Yale University, 1950.

Keyser, James M. B., Ph.D., Assistant Professor of Anthropology. B.A., Haverford College, 1954; M.A., Harvard University, 1963; Ph.D., 1969.

King, Jack L., Ph.D., Assistant Professor of Biology. A.B., University of California (Berkeley), 1959; M.A., 1962; Ph.D., 1963.

Kingston, William H., LL.B., Lecturer in Economics. B.S., St. Lawrence University, 1935; LL.B., Brooklyn Law School, 1939.

Kirker, Harold C., Ph.D., Professor of History. I.A., Harvard University, 1943; M.B.A., Harvard University, 1946; A.B., University of California (Berkeley), 1951; Ph.D., 1957.

Kirtman, Bernard, Ph.D., Associate Professor of Chemistry. A.B., Columbia College, 1955; Ph.D., Harvard University, 1961.

Kitto, H. D. F., B.A., F.B.A., F.R.S.L., Lecturer in Classics. B.A., Cambridge University, 1919.

Kohl, David M., Ph.D., Assistant Professor of Biology. B.S., New York City College, 1964; Ph.D., New York State University, 1969.

Konrad, Roselinde, Lecturer in German.

Kostakis, Joyce S., M.A., Associate in Spanish. B.A., University of California, Santa Barbara, 1966; M.A., 1968.

Kostruba, Mstislav W., M.A., Lecturer in Russian. B.A., 1964; M.A., University of California (Santa Barbara), 1966.

Kotzebue, Kenneth L., Ph.D., Professor of Electrical Engineering. B.S., University of Texas, 1954; M.S., University of California (Los Angeles), 1956; Ph.D., Stanford University, 1959.

Koutroufiotis, Dimitri, Ph.D., Assistant Professor of Mathematics. M.S., New York University, 1967; Ph.D., 1969.

Krass, Allan S., Ph.D., Assistant Professor of Physics. B.S., Cornell University, 1958; Ph.D., Stanford University, 1963.

Krayk, Stefan, Licence de Concerts, Professor of Music. Diplôme d'Exécution, École Normale de Musique (Paris), 1936; Licence de Concerts, 1937.

Krebs, Stanley D., Ph.D., Associate Professor of Music. A.B., University of Washington, 1949; M.A., 1951; Ph.D., 1963.

Kuby, William C., Ph.D., Associate Dean of College of Engineering, Associate Professor of Mechanical Engineering. B.S.Ch.E., Northwestern University, 1955; M.S.Ch.E., 1957; Ph.D., 1960.

Kuhn, Michael W., Ph.D., Assistant Professor of Geography. B.A., San Jose State College, 1962; M.A., University of California (Los Angeles), 1965; Ph.D., University of California, Los Angeles, 1970.

Kunzle, David M., Ph.D., Assistant Professor of Art. B.A., Cambridge University, 1957; Ph.D., University of London, 1964.

La Berge, Jeanne, B.A., Assistant Supervisor of Physical Activities. A.A., Colorado Women's College, 1957; B.A., University of California (Santa Barbara), 1960.

Lacey, Stephen W., M.A., Acting Assistant Professor of English. B.A., Cornell College, 1965; M.A., State University of New York at Buffalo, 1969.

Lamberti, Matthew V., Ph.D., Assistant Professor of History, B.A. Yale University, 1952; M.A. Columbia University 1965; Ph.D., 1968.

Lamon, William E., Ph.D., Assistant Professor of Education. Baccalaureaté Belge, Koninklijk Atheneum, 1957; B.S., University of San Francisco, 1964; M.S., California State College Hayward, 1965; Ph.D., University of California (Berkeley), 1968.

Lanier, Richard S., M.A., Acting Assistant Professor of Art. B.A., Tulane University, 1965; M.A., Institute of Fine Arts, New York University, 1967.

Lantagne, Joseph E., Ed.D., Professor of Ergonomics and Physical Education. A.B., San Jose State College, 1937; M.A., Stanford University, 1940; Ed.D., 1948.

Laris, Philip C., Ph.D., Associate Professor of of Biology. B.S., Rutgers University, 1952; M.A., Princeton University, 1954; Ph.D., 1956.

Larson, Gerald J., Associate Professor. A.B., Blackburn College, Carlinville, Illinois, 1960; B.D., Union Theological Seminary, New York City, N.Y., 1963; Ph.D., Columbia University, New York City, N.Y., 1967; Postdoctoral Research Scholar, Banarus Hindu University, Varanasi, India, 1968–69.

Lawton, Harry, B.Litt., Assistant Professor of Italian. B.A., University of Oxford, 1960; B.Litt., University of Oxford, 1963.

Lawyer, David N. Jr., A.B., Lecturer in History. A.B., Princeton University, 1968.

Lazorchik, Frank, M.A., Lecturer in Italian. B.A., San Francisco State College, 1961; M.A., University of California (Los Angeles), 1966.

Lee, Paul H., A.B., Adjunct Professor of Physics. A.B., Harvard College, 1937.

Lee, Nancy L., Ph.D., Associate Professor of Microbiology. A.B., Saint Mary's College, 1950; M.S., University of Wichita, 1953; Ph.D., University of Pittsburgh, 1962.

Legassick, Martin C., Ph.D., Assistant Professor of History. B.A., Physics, Balliol College, University of Oxford, 1963; Ph.D., University of California (Los Angeles), 1969.

Lehman, Ann, Ph.D., Assistant Professor of English. B.A., College of St. Teresa, 1957; M.A., Cornell University, 1968; Ph.D. 1970.

Leonard, Edith M., M.A., Professor of Education, Emeritus. B.E., National College of Education, 1924; M.A., Claremont Colleges, 1930.

Levin, Lawrence L., Ph.D., Assistant Professor of English B.A., Western Reserve University, 1962; M.A., 1963, University of Wisconsin, 1968.

Levy, Judith, M.A., Associate in French. B.A., University of California (Berkeley), 1961; M.A., University of California (Berkeley), 1964.

Lewis, Harold W., Ph.D., Professor of Physics. A.B., New York University, 1943; M.A., University of California (Berkeley), 1944; Ph.D., 1948.

Li, Charles N., B.A., Acting Assistant Professor of Linguistics. B.A., Bowdoin College, 1963.

Limoli, Donald A., Ph.D., Assistant Professor of History. B.S., Rutgers University, 1953; M.A., 1954; Ph.D., Princeton University, 1961.

Lindberg-Hansen, Jacob, M.A., Professor of Art, Emeritus. A.B., University of California (Santa Barbara), 1941; M.A., Claremont College, 1944.

Linder, Waldemar, B.Mus., Associate in Music. B.Mus., Eastman School of Music, 1937.

Lingerfelt, Joe E., Ph.D., Lecturer in Mechanical Engineering. B.S., California Institute of Technology, 1957; M.S., Calif. Inst. of Technology, 1958; Ph.D., University of California (Santa Barbara), 1969.

Linn, Rolf N., Ph.D., Professor of German. A.B., College of Mines and Metallurgy (Texas), 1941; M.A., University of California (Los Angeles), 1942; Ph.D., 1949.

Liu, Alan P. L., Ph.D., Assistant Professor of Political Science. B.A., Tunghai University, 1959; M.A., University of Washington, 1963; Ph.D., Massachusetts Institute of Technology, 1968.

Loomis, Edward W., Ph.D., Professor of English. A.B., Western Reserve University, 1947; M.A., Stanford University, 1950; Ph.D., 1959.

Lopez, Lawrence J., B.A., Junior Supervisor in Physical Activities. B.A., San Fernando Valley State College, 1969.

Lopez, Nelida, B.A., Lecturer in Spanish. B.A. and Teaching Credential, Instituto Superior del Profesorado, Buenos Aires, 1955.

Lorber, Janice Y., B.A., Associate in Art. B.A., University of California (Santa Barbara), 1964.

Lovejoy, Elijah P., Ph.D., Assistant Professor of Psychology. A.B., Princeton University, 1962; Ph.D., University of Pennsylvania, 1966.

Lundell, Torborg L., M.A., Associate in Swedish. M.A., University of Stockholm, 1964.

Macdonald, Keith B., Ph.D., Assistant Professor of Oceanography. B.Sc., University College, London, 1961; Ph.D., Scripps Institution of Oceanography, 1967.

MacGregor, Alma B., Ph.D., Professor of Psychology, Emeritus. A.B., University of California (Berkeley), 1926; M.A., Columbia University, 1928; Ph.D., 1932.

Macksoud, S. John, Ph.D., Assistant Professor of Speech. A.B., University of California (Los Angeles), 1957; M.A., 1960; Ph.D., 1964.

Macomber, William B., Ph.D., Assistant Professor of Philosophy. B.S., University of Santa Clara, 1950; M.A., University of Toronto, 1952; Ph.D., 1963.

Madsen, William, Ph.D., Professor of Anthropology. B.A., Stanford University, 1946; Ph.D., University of California (Berkeley), 1955.

Mahlendorf, Ursula R., Ph.D., Associate Professor of German. M.A., Brown University, 1956; Ph.D., 1958.

Major, Ruth, Ph.D., Associate Professor of Home Economics, Emeritus. B.S., Nebraska Wesleyan University, 1927; M.S., University of Minnesota, 1940; Ph.D., Washington State College, 1947.

Malécot, André, Ph.D., Professor of French. A.B., University of Delaware, 1942; M.A., Middlebury College, 1947; Ph.D., University of Pennsylvania, 1952.

Malet, Jacques, Ph.D., Assistant Professor of French. B.S., Memphis State University, 1963; M.A., University of Illinois, 1967; Ph.D., University of Illinois, 1970.

Mankoff, Milton L., Ph.D., Assistant Professor in Sociology. A.B., Hunter College, 1964; M.A., University of Wisconsin, 1966; Ph.D., 1970.

Mann, Dean E., Ph.D., Professor of Political Science. A.B., University of California (Berkeley), 1951; M.A., 1954; Ph.D., 1958.

Marcus, Marvin, Ph.D., Professor of Mathematics. A.B., University of California (Berkeley), 1950; Ph.D., 1954.

Margon, Joseph S., Ph.D., Assistant Professor of Classics. A.B., Columbia University, 1940; M.A., 1941, Ph.D., University of Southern California, 1968.

Mark, Peter, M.S., Assistant Professor of Music. B.A., Columbia College, 1961; M.S., Juilliard School of Music, 1963.

Marks, William S., Ph.D., Associate Professor of English. A.B., Rutgers University, 1955; Ph.D., Stanford University, 1964.

Marsak, Leonard M., Ph.D., Professor of History. B.S., Cornell University, 1948; M.A., 1949; Ph.D., 1957.

Marschall, Ekkehard, Ph.D., Assistant Professor of Mechanical Engineering. M.S., Technische Universitat, Hannover, 1962; Ph.D., 1967.

Marshall, Lynn L., Ph.D., Assistant Professor of History. B.A., University of California (Berkeley), 1954; M.A., 1957; Ph.D., 1962.

Martin, M. Kay, Assistant Professor of Anthropology. B.A., State University of New York at Buffalo, 1964; M.A., 1966; Ph.D., 1970.

Martin, Richard M., Ph.D., Assistant Professor of Chemistry. B.A., University of California (Riverside), 1959; Ph.D., University of Wisconsin, 1963.

Martínez-López, Enrique, Ph.D., Associate Professor of Spanish. A.B., Instituto Nacional E. Media, University of Granada, 1947; M.A., University of Madrid, 1952; Ph.D., 1964.

Mason, Peter F., Ph.D., Assistant Professor of Geography. B.A., Fresno State College, 1963; M.A., University of Colorado, 1965; Ph.D., University of California (Los Angeles), 1968.

Masson, Edmond E., Ph.D., Professor of French. A.B., Stanford University, 1929; M.A., 1930; Ph.D., University of California (Berkeley), 1950.

Mathews, J. Chesley, Ph.D., Professor of English. A.B., Furman University, 1927; M.A., Duke University, 1929; Ph.D., University of California (Berkeley), 1937.

Mathewson, Eleanor H., M.A., Lecturer in Home Economics. A.B., University of Nebraska, 1931; M.A., San Jose State College, 1966.

Matthaei, George L., Ph.D., Professor of Electrical Engineering. B.S., University of Washington, 1948; M.S., Stanford University, 1949; Ph.D., 1952.

McAda, Harleen W., Ph.D., Assistant Professor of Education. B.S., Texas Woman s University, 1957; M.E., Texas Technological College, 1964; Ph.D., University of Texas, 1966.

McCain, Douglas C., Ph.D., Assistant Professor of Chemistry. B.S., Purdue University, 1960; Ph.D., University of California (Berkeley), 1966.

McCarthy, Patrick J., Ph.D., Professor of English. A.B., Fordham University, 1943; M.A., Columbia University, 1947; Ph.D., 1960.

McClintock, Charles G., Ph.D., Associate Professor of Psychology. A.B., Oberlin College, 1951; M.A., University of Michigan, 1952; Ph.D., 1956.

McCoy, Robert A., Ed.D., Associate Professor of Industrial Arts. B.S., Bowling Green State University, 1933; M.Ed., University of Colorado, 1946; Ed.D., Oregon State College, 1953.

McCurdy, Bruce S., M.F.A., Associate Professor of Art. A.B., University of California (Santa Barbara), 1958; B.F.A., Yale University, 1961; M.F.A., 1963.

MacDonald, Gordon J. F., Ph.D., Professor of Physics. A.B., Harvard University, 1950; A.M., 1952; Ph.D., 1954.

Macdonald, Keith B., Ph.D., Assistant Professor of Geology. B.S., University of London, 1961; Ph.D. (Oceanography), University of California (San Diego), 1967.

McCoy, Esther, Lecturer in Art.

McGrady, Donald L., Ph.D., Associate Professor of Spanish. A.B., Swarthmore College, 1957; M.A., Harvard University, 1958; Ph.D., Indiana University, 1961.

McGuckin, Robert H., Ph.D., Assistant Professor of Economics. B.A., Ithaca College, 1965; M.A., State University of New York (Buffalo), 1968; Ph.D., State University of New York (Buffalo), 1970.

McPherson, David C., Ph.D., Assistant Professor of English. B.A., Hardin-Simmons University, 1957; M.A., University of Texas, 1962; Ph.D., 1966.

Mead, Walter J., Ph.D., Professor of Economics. A.B., University of Oregon, 1948; M.A., Columbia University, 1950; Ph.D., University of Oregon, 1952.

Meller, Peter T., Ph.D., Associate Professor of Art. Ph.D., University of Budapest, 1946.

Mellichamp, Duncan A., Ph.D., Assistant Professor of Chemical Engineering. B.Ch.E., Georgia Institute of Technology, 1959; Ph.D., Purdue University, 1964.

Mercer, Lloyd J., Ph.D., Assistant Professor of Economics. B.S., Washington State University, 1958; M.A., University of Washington, 1965; Ph.D., University of Washington, 1967.

Mercurio, Peter, Lecturer in Music.

Meredith, Florence C., M.A., Professor of Home Economics, Emeritus. A.B., Pomona College, 1913; M.A., Columbia University, 1923.

Merkl, Peter H., Ph.D., Professor of Political Science. A.B., University of Munich, 1951; M.A., University of Minnesota, 1953; Ph.D., University of California (Berkeley), 1959.

Messick, David M., Ph.D., Assistant Professor of Psychology. A.B., University of Delaware, 1961; M.A., University of North Carolina, 1964; Ph.D., 1965.

Michael, Ernest D., Ph.D., Professor of Ergonomics and Physical Education. B.P.E., Purdue University, 1947; M.S., University of Illinois, 1949; Ph.D., 1952.

Michaelsen, Robert S., Ph.D., Professor of Religious Studies. B.A., Cornell College, 1942; B.D., Yale University Divinity School, 1945; Ph.D., Yale University Graduate School, 1951.

Miko, Stephen J., Assistant Professor of English. B.A., Yale University, 1962; Ph.D., 1966.

Mikolaj, Paul G., Ph.D., Assistant Professor of Chemical Engineering. B.Ch.E., Fenn College, 1958; M.S., University of Rochester, 1960; Ph.D.; California Institute of Technology, 1965.

Miller, Glenn H., Ph.D., Professor of Chemistry. B.S., Geneva College, 1943; Ph.D., Brown University, 1948.

Miller, Harold J., Ed.D., Associate Professor of Industrial Arts, Emeritus. B.S., University of Illinois, 1931; M.S., Indiana University, 1938; Ed.D., Oregon State College, 1956.

Millett, Kenneth C., Ph.D., Assistant Professor of Mathematics. B.S., Massachusetts Institute of Technology, 1963; M.S., University of Wisconsin, 1964; Ph.D., 1967.

Millikan, Roger C., Ph.D., Professor of Chemistry. A.B., Oberlin College, 1953; Ph.D., University of California (Berkeley), 1957.

Mills, Glenn E., Ph.D., Professor of Speech. B.S., Eastern South Dakota State, 1930; M.A., University of Michigan, 1935; Ph.D., 1941.

Milstein, Frederick, Ph.D., Assistant Professor of Mechanical Engineering, University of California (Los Angeles), 1966.

Minc, Henryk, Ph.D., Professor of Mathematics. M.A., University of Edinburgh, 1955; Ph.D., 1959.

Mines, Mattison, Ph.D., Assistant Professor of Anthropology. B.A., University of Washington, 1963; M.A., 1965; Ph.D., Cornell University, 1969.

Mitchell, Thomas P., Ph.D., Professor of Engineering Mechanics. B.S., National University of Ireland (Galway), 1950; M.S., 1952; B.C.E., 1953; Ph.D., California Institute of Technology, 1956.

Miyuki, Mokusen, Ph.D., Lecturer in Religious Studies. B.A., University of Tokyo, 1953; M.A., UCLA, 1962; Ph.D., Claremont Graduate School, 1965.

Mochizuki, Horace Y., Ph.D., Assistant Professor of Mathematics. B.S., University of Redlands, 1959; Ph.D., University of Washington, 1963.

Moir, Alfred K., Ph.D., Professor of Art. A.B., Harvard College, 1948; M.A., Harvard University, 1949; Ph.D., 1953.

Molotch, Harvey L., Ph.D., Assistant Professor of Sociology. B.A., University of Michigan, 1963; M.A., University of Chicago, 1966; Ph.D., 1967.

Monnot, Janice Mary, B.S., Associate in French. B.S., St. Cloud State College, 1962.

Montoliu, Enrique de, M.A., Lecturer in Spanish. Bachillerato, Instituto Maragall, Barcelona, 1949; M.A., University of Barcelona, 1956.

Moody, Leo Carl, M.A., Acting Assistant Professor of Russian. M.A., Harvard University, 1964.

Moore, John D., Ph.D., Assistant Professor of Mathematics. B.A., University of California (Berkeley), 1965; Ph.D., 1969.

Moore, John E., Ph.D., Associate Professor of Political Science. B.A., Reed College, 1957; M.A., Princeton University, 1960; Ph.D., 1963.

Moore, Roy, M.A., Lecturer of English. B.A., University of London, 1928; M.A., 1931.

Morgan, Robert D., M.F.A., Acting Assistant Professor in Dramatic Art. B.A., Dartmouth College, 1966; M.F.A., Stanford University, 1969.

Morgan, W. Douglas, Ph.D., Assistant Professor of Economics. B.A., University of California (Los Angeles), 1960; M.A., University of California (Berkeley), 1966; Ph.D., 1969.

Morgenroth, Ruth A., Lecturer in Dramatic Art.

Moriya, Toru, D.Sc., Visiting Professor of Physics. B.S., Osaka University, 1953; Docteur-es-Sciences, Osaka University, 1957.

Moro, Mr. Guerrino, M.S., Junior Supervisor of Physical Activities. B.S., University of Oregon, 1966; M.S., California State Polytechnic, 1969.

Morrison, Rollin J., Ph.D., Assistant Professor of Physics. B.A., Ohio Wesleyan University, 1959; Ph.D., University of Illinois, 1964.

Moseley, Maynard F., Ph.D., Professor of Botany. B.S., Massachusetts State College, 1940; M.S., University of Illinois, 1942; Ph.D., 1947.

Mudrick, Marvin, Ph.D., Professor of English. A.B., Temple University, 1942; M.A., University of California (Berkeley), 1947; Ph.D., 1949.

Mühlschlegel, Bernhard, Ph.D., NSF Visiting Foreign Scientist. Diploma in Physics, University of Berlin, 1950; Dr.rer.nat., University of Berlin, 1953.

Mulac, Anthony J., Ph.D., Assistant Professor of Speech. B.S., Northwestern University, 1959; M.A., University of Michigan, 1962; Ph.D., 1968.

Mund, Geraldine, M.S., Assistant Supervisor of Physical Activities, Women's Intramural Director. B.A., Brandeis University, 1965; M.S., Smith College, 1967.

Muller, Cornelius H., Ph.D., Professor of Botany. A.B., University of Texas, 1932; M.A., 1933; Ph.D., University of Illinois, 1938.

Muller, Walter H., Ph.D., Professor of Botany. B.S., Queens College of the City of New York, 1942; Ph.D., Cornell University, 1950.

Murdoch, William W., Ph.D., Associate Professor of Biology. B.Sc., Glasgow University, 1960; Ph.D., Oxford University, 1963.

Murray, Jack, Ph.D., Associate Professor of French. A.B., Wesleyan University, 1952; M.A., Université de Grenoble, Grenoble, France, 1953; Ph.D., Yale University, 1957.

Myer, Prudence R., Ph.D., Associate Professor of Art. B.A., Oberlin College, 1943; M.A., New York University, Institute of Fine Arts, 1948; Ph.D., Radcliffe College, 1956.

Myers, John E., Ph.D., Professor of Chemical Engineering. B.Sc., University of Alberta, 1944; M.A.Sc., University of Toronto, 1946; Ph.D., University of Michigan, 1952.

Myers, Mitzi, Ph.D., Assistant Professor of English. B.A., East Texas State University, 1961; M.A., 1962. Rice University, 1968.

Nair, Ralph K., Ed.D., Professor of Education. B.S., Kansas State College (Pittsburg), 1935; M.S., 1939; Ed.D., University of Missouri, 1950.

Nakada, Henry I., Ph.D., Associate Professor of Biochemistry. A.B., Temple University, 1948; Ph.D., 1953.

Nash, A. E. Keir, Ph.D., Assistant Professor of Political Science. A.B., Harvard College, 1958; M.A., University of North Carolina, 1961; Ph.D., Harvard University, 1967.

Nash, Roderick W., Ph.D., Associate Professor of History. A.B., Harvard University, 1960; M.A., 1961; Ph.D., 1964.

Nelson, John A., Jr., Ed.D., Lecturer in Education and Head of Teacher Education. B.A., University of California (Berkeley), 1948; M.A., University of California (Berkeley), 1950; Ed.D., University of California (Berkeley), 1962.

Nelson, Wendell A., Doc.Mus., Associate Professor of Music. A.B., Pomona College, 1950; M.M., University of Michigan, 1951; Doc.Mus., Northwestern University, 1960.

Nesbitt, Paul D., Ph.D., Assistant Professor of Psychology. B.A., University of Toronto, 1965; Ph.D., Columbia University, 1969.

Neushul, Michael, Ph.D., Associate Professor of Botany. B.A., University of California (Los Angeles), 1955; Ph.D., 1959.

Nieto, Michael M., Ph.D., Lecturer in Physics. B.A., University of California (Riverside), 1961; Ph.D., Cornell University, 1966.

Noble, Elmer R., Ph.D., Professor of Zoology. A.B., University of California (Berkeley), 1931; M.A., 1933; Ph.D., 1936.

Noël, Robert C., Ph.D., Assistant Professor of Political Science. A.B., University of California (Riverside), 1956; Ph.D., Northwestern University, 1963.

Nordsieck, Arnold T., Ph.D., Lecturer in Mechanical Engineering. B.A., Ohio State University, 1931; M.S., Ohio State University, 1932; Ph.D. (Berkeley), University of California, 1935.

Norman, Morris R., A.B., Lecturer in Economics. A.B., University of British Columbia, 1963.

Norman, Nancy A., M.A., Assistant Supervisor of Physical Activities. B.S., Colorado State College, 1963; M.A., Northern Arizona University, 1967.

Norris, Robert J., B.A., Lecturer in Black Studies. B.A. & B.S., Morgan State College, 1952.

Norris, Robert M., Ph.D., Associate Professor of Geology. A.B., University of California (Los Angeles), 1943; M.A., 1949; Ph.D., University of California (Scripps Institution of Oceanography), 1951.

Obradovic, Sylvia M., Ph.D., Lecturer in Black Studies. B.X., Howard University, 1946; M.S., Illinois Institute of Technology, 1956; Ph.D., University of California (Berkeley), 1962.

O'Brien, Emma Lou, Lecturer in Dance.

O'Brien, John M., M.S., Associate in Geology. B.A., Earlham College, 1963; M.S., Miami University, 1967.

O'Connell, Michael, M.Phil., Acting Assistant Professor of English. A.B., University of San Francisco, 1966; M.Phil., Yale University, 1969.

O'Dea, Thomas F., Ph.D., Professor of Religious Studies and Sociology; Director, Institute of Religious Studies. A.B., Harvard College, 1949; A.M., Harvard University, 1951; Ph.D., Harvard University, 1953.

O'Dea, Janet, M.A., Lecturer in Religious Studies. B.A., Barnard, 1963; M.A., Columbia University, 1966.

Oaten, Allan, Ph.D., Assistant Professor of Mathematical Biology. B.A., Melbourne University, 1962; M.S., Michigan State University, 1967; Ph.D., Michigan State University, 1969.

Odette, G. Robert, Ph.D., Assistant Professor of Nuclear Engineering. B.S., Rensselaer Polytechnic Institute, 1965; S.M., Massachusetts Institute of Technology, 1968; Ph.D., Massachusetts Institute of Technology, 1970.

Offen, Henry W., Ph.D., Associate Professor of Chemistry. A.B., St. Olaf College (Minnesota), 1958; Ph.D., University of California (Los Angeles), 1963.

Oglesby, Richard E., Ph.D., Professor of History. B.S., Northwestern University, 1953; M.A., 1957; Ph.D., 1962.

Ondrejka, Ronald, M.M., Lecturer in Music. B.Mus., Eastman School of Music, 1953; M.M., 1954.

Ordung, Philip F., D.Engr., Professor of Electrical Engineering. B.S., South Dakota State College of Agriculture and Mechanic Arts, 1940; M. Engr., Yale University, 1942; D.Engr., 1949.

Ornelas, Charles, B.A., Acting Assistant Professor of Political Science. B.A., California State College, Los Angeles, 1962.

Orias, Eduardo, Ph.D., Associate Professor of Biology. B.S., University of Michigan, 1955; M.S., 1957; Ph.D., 1960.

Ostrand, Phillip A., Ph.D., Assistant Professor of Mathematics. B.S., University of Illinois, 1959; M.A., Northwestern University, 1962; Ph.D., 1965.

Outcalt, David L., Ph.D., Associate Professor of Mathematics. A.B., Pomona College, 1956; M.A., Claremont Graduate School, 1958; Ph.D., Ohio State University, 1963.

Pai, Kenneth Hsien-yung, M.F.A., Lecturer in Chinese. B.A., National Taiwan University, 1961; M.F.A., State University of Iowa, 1965.

Palke, William E., Ph.D., Assistant Professor of Chemistry. B.S., California Institute of Technology, 1962; Ph.D., Harvard University, 1966.

Palmer, Upton S., Ph.D., Professor of Speech. A.B., University of Redlands, 1928; M.A., State University of Iowa, 1930; Ph.D., University of Michigan, 1950.

Pate, Glenn S., M.A., Supervisor of Teacher Education. B.S., Western Kentucky University, 1955; M.A., University of Illinois, 1962.

Peale, Stanton, Ph.D., Assistant Professor of Physics. B.S., Purdue University, 1959; M.S., Cornell University, 1962; Ph.D., 1965.

Pearce, Donald R., Ph.D., Professor of English. A.B., University of Western Ontario, 1940; M.A., University of Michigan, 1941; Ph.D., 1948.

Pearson, Birger A., Ph.D., Assistant Professor of Religious Studies. B.A., Upsala College, 1957; M.A., University of Calif. (Berkeley), 1959; B.D., Pacific Lutheran Theological Seminary, 1962; Ph.D., Harvard University, 1968.

Pellish, Maxwell C., M.A., Lecturer in Economics. E.M., Colorado School of Mines, 1925; M.A., University of California (Santa Barbara), 1961.

Petzinger, Kenneth G., M.A., Lecturer in Physics. A.B., Princeton University, 1963; M.A., Columbia University, 1965.

Philbrick, Ralph N., Ph.D., Lecturer in Botany. B.A., Pomona College, 1956; M.A., University of California (Los Angeles), 1958; Ph.D., Cornell University, 1963.

Phillips, David T., Ph.D., Assistant Professor of Physics. B.S., Iowa State University, 1960; Ph.D., University of California (Berkeley), 1966.

Phillips, Llad, Ph.D., Assistant Professor of Economics. B.S. (Chemistry), University of California (Berkeley), 1956; A.B. (Economics), University of California (Berkeley), 1962; M.A., Harvard University, 1966; Ph.D., 1969.

Pidgeon, Eileen A., M.A., Lecturer in English. A.B., Western Michigan College, 1939; M.A., University of Michigan, 1940.

Pigeon, Gerard G., M.A., Acting Assistant Professor of Black Studies. A.B., Lycee Voltaire, 1957; A.B., Lycee Turgot, 1958; M.A., University of California (Santa Barbara), 1969.

Pierson, Conway, M.F.A., Associate Professor of Art. A.B., University of California (Santa Barbara), 1954; M.F.A., California College of Arts and Crafts, 1955.

Pippenger, John E., Ph.D., Assistant Professor of Economics. B.A., Wabash College, 1955; Ph.D., University of California (Los Angeles), 1966.

Pond, Elsie A., M.A., Professor of Education, Emeritus. A.B., Stanford University, 1919; M.A., 1920.

Pothier, Nancy Lee, M.A., Junior Supervisor of Physical Activities. B.A., San Fernando

Valley State College, 1968; M.A., University of California (Berkeley), 1970.

Potter, Robert A., Ph.D., Assistant Professor of English. B.A., Pomona College, 1956; M.A., Claremont Graduate School, 1962; Ph.D., 1965.

Pough, Frederick H., Ph.D., Research Associate in Geology. B.S., Harvard University, 1928; M.S., Washington University, 1931; Ph.D., Harvard University, 1935.

Powell, Philip W., Ph.D., Professor of History. A.B., University of California (Berkeley), 1936; Ph.D., 1941.

Premack, David, Ph.D., Professor of Psychology. B.A., University of Minnesota, 1949; M.A., 1951; Ph.D., 1955.

Presser, Leon, Ph.D., Assistant Professor of Electrical Engineering. B.S., University of Illinois, 1961; M.S., University of Southern California, 1964; Ph.D., University of California (Los Angeles), 1968.

Price, Margaret Mary, M.A., Associate in Spanish. B.A., University of Utah, 1945; M.A., 1950.

Pritchard, Glyn O., Ph.D., Professor of Chemistry. B.S.C., University of Manchester, England, 1952; Ph.D., 1955.

Pritchett, C. Herman, Ph.D., Professor of Political Science. A.B., Milliken University, 1927; Ph.D., University of Chicago, 1937.

Profio, A. Edward, Ph.D., Associate Professor of Nuclear Engineering. S.B., Massachusetts Institute of Technology, 1953; Ph.D., 1963.

Ptaszynski, William R., Associate Professor of Art.

Purcell, Robert N., B.S., Acting Assistant Professor of Economics. B.S., Iowa State University, 1962.

Pursell, Carroll W., Jr., Ph.D., Associate Professor of History, B.A. University of California, Berkeley, 1956; University of Delaware, 1958; Ph.D., University of California, 1962.

Purves, William K., Ph.D., Professor of Biology. B.S., California Institute of Technology, 1956; M.S., Yale University, 1957; Ph.D., 1959.

Quimby, Rollin W., Ph.D., Associate Professor of Speech. A.B., Ohio Wesleyan University, 1943; M.A., University of Michigan, 1947; Ph.D., 1951.

Ramelli, Eda, Doctora en Letras, Professor of Spanish, Emeritus. A.B., University of California (Berkeley), 1913; M.A., Stanford University, 1926; Doctora en Letras, National University of Mexico, 1950.

Ramos, Reyes, B.M.E., Acting Assistant Professor of Sociology. B.M.E., Sam Houston State Teachers College, 1962.

Ramsey, Jonathan R., M.A., Acting Assistant Professor of English. B.A., San Diego State College, 1965; M.A., University of California (Riverside), 1966.

Ransdell, Joseph, Ph.D., Assistant Professor of Philosophy. B.A., San Francisco State College, 1961; Ph.D., Columbia University, 1966.

Rathe, David F., B.A., Captain, Armor, Assistant Professor of Military Science. B.A., University of Washington, 1965.

Reardon, William R., Ph.D., Professor of Dramatic Art. A.B., Clark University, 1949; M.A., 1950; Ph.D., Stanford University, 1953.

Reid, Joseph W., M.A., Lecturer in Black Studies. B.A., Talladega College, 1953; M.A., New Mexico Highlands University, 1954.

Reinhardt, Lloyd R., B.A., Assistant Professor of Philosophy. B.A., University of California (Berkeley), 1960.

Remak, Joachim, Ph.D., Professor of History. B.A., University of California (Berkeley), 1942; M.A., 1946; Ph.D., Stanford University, 1955.

Rexroth, Kenneth, Lecturer of English.

Reynolds, Robert W., Ph.D., Associate Professor of Psychology. A.B., Cornell University, 1949; M.A., University of Buffalo, 1950; Ph.D., 1956.

Reynolds, Winston A., Ph.D., Associate Professor of Spanish. A.B., University of California (Los Angeles), 1950; M.A., 1951; Ph.D., University of Southern California, 1956.

Rice, Ann S., Ph.D., Lecturer in Home Economics. B.S., Georgia State College for Women, 1947; M.Ed., University of Georgia, 1951; Ph.D., Florida State University, 1964.

Rickborn, Bruce F., Ph.D., Associate Professor of Chemistry. A.B., University of California (Riverside), 1956; Ph.D., University of California (Los Angeles), 1960.

Ridland, John M., Ph.D., Associate Professor of English. A.B., Swarthmore College, 1953; M.A., University of California (Berkeley), 1958; Ph.D., Claremont Graduate School, 1964.

Riley, Bernard W., Ph.D., Assistant Professor of Geography. B.S., Victoria University of Manchester, 1951; M.S., Indiana University, 1961; Ph.D., Indiana University, 1967.

Ring, Merrill L., Ph.D., Assistant Professor of Philosophy. B.A., University of California (Santa Barbara), 1962; M.A., University of Washington, 1963; Ph.D., 1965.

Rinker, Robert G., Ph.D., Associate Professor of Chemical Engineering. B.S., Rose Polytechnic Institute, 1951; M.S., California Institute of Technology, 1955; Ph.D., 1959.

Robertson, James B., Ph.D., Associate Professor of Mathematics. S.B., Massachusetts Institute of Technology, 1959; Ph.D., Indiana University, 1964.

Rochelle, Rene H., Ph.D., Associate Professor of Ergonomics and Physical Education. B.S., University of Illinois, 1948; M.S., 1949; Ph.D., 1953.

Roemer, Robert B., Assistant Professor of Mechanical Engineering. B.S.M.E., University of Wisconsin, 1963; M.S.M.E., Stanford, California, 1965.

Rohrbach, William A., M.A., Associate Professor of Art. A.B., University of Michigan, 1948; M.A., University of California (Berkeley), 1951.

Rosenfeld, Melvin, Ph.D., Associate Professor of Mathematics. A.B., University of California (Los Angeles), 1956; M.A., 1962; Ph.D., 1963.

Ross, Ian K., Ph.D., Associate Professor of Biology. B.S., George Washington University, 1952; M.S., 1953; Ph.D., McGill University, 1957.

Rossi, Patrizio, Ph.D., Assistant Professor of Italian. B.A., Northwest Nazarene College, 1959; Ph.D., University of California (Berkeley), 1963.

Rowland, William F., M.S., Associate Supervisor of Physical Activities. B.S., University of Oklahoma, 1957; M.S., Pepperdine College, 1960.

Russell, R. Robert, Ph.D., Associate Professor of Economics. A.B., University of California (Santa Barbara), 1961; Ph.D., Harvard University, 1964.

Rutkowski, Geoffrey B., M.M., Assistant Professor of Music. M.M., University of Southern California, 1966.

Sackeroff, David B., M.F.A., Lecturer in Dramatic Art. B.F.A., Ohio University, 1966; M.F.A., Brandeis University, 1969.

Sandall, Orville C., Ph.D., Assistant Professor of Chemical Engineering. B.Sc., University of Alberta (Canada), 1961; M.Sc., 1963; Ph.D., University of California (Berkeley), 1966.

Sande, Rona, M.Ed., Associate Professor of Dance, B.S., George Washington University, 1956; M. Ed., College of William and Mary, 1961.

Sanders, Norman K., Ph.D., Assistant Professor of Geography. B.S., University of Alaska, 1958; M.A., University of California (Los Angeles), 1964; Ph.D., University of Tasmania (Australia), 1968.

Sands, Lester B., Ed.D., Professor of Education. A.B., Stanford University, 1929; M.A., 1933; Ed.D., 1939.

Sandusky, Arthur J., Ph.D., Assistant Professor of Psychology. B.A., University of California (Los Angeles), 1961; Ph.D., University of California (Los Angeles), 1966.

Sankey, Benjamin T., Jr., Ph.D., Assoicate Professor of English. A.B., M.A., Johns Hopkins University, 1951; Ph.D., 1955.

Santi, Daniel V., Ph.D., Assistant Professor of Chemistry. B.S., State University of New York at Buffalo, 1963; Ph.D., 1967.

Sauer, Loretta M., Ed.D., Professor of Education, Emeritus. B.S., Northwestern University, 1933; M.A., Stanford University, 1937; Ed.D., 1949.

Sawyer, Raymond F., Ph.D., Professor of Physics. A.B., Swarthmore College, 1953; M.A., Harvard University, 1955; Ph.D., 1958.

Sayovitz, Joseph J., Ph.D., Associate Professor of Industrial Arts and Lecturer in Electrical Engineering. B.S., Minnesota State Teachers College (St. Cloud), 1941; M.S., Iowa State College, 1947; Ph.D., University of Minnesota, 1955.

Scalapino, Douglas J., Ph.D., Professor of Physics. B.S., Yale University, 1955; Ph.D., Stanford University, 1961.

Scheff, Thomas J., Ph.D., Professor of Sociology. A.B., University of Arizona, 1950; M.A., University of California (Berkeley), 1957; Ph.D., 1960.

Scherer, Paul L., Ed.D., Associate Professor of Home Economics. B.S., Ohio State University, 1930; M.A., Western Reserve University, 1938; Ed.D., 1951.

Schilo, Eileen M., M.Ed., Junior Supervisor of Physical Activities. B.A., San Fernando Valley State College, 1965; M.Ed., University of Arizona, 1967.

Smeltzer, Ronald E., M.S., Junior Supervisor of Physical Activities. B.S., West Chester State College, 1967; M.S., University of Colorado, 1969.

Schmutzer, Janice, B.A., Associate in Music. B.A., University of California (Santa Barbara), 1963.

Schoell, Edwin R., Ph.D., Professor of Speech. A.B., Louisiana State University, 1939; M.A., University of Denver, 1947; Ph.D., 1951.

Schrank, Glen, Ph.D., Associate Professor of Physics. A.B., University of California (Los Angeles), 1947; M.A., 1950; Ph.D., 1953.

Schrock, Thomas S., Ph.D., Assistant Professor of Political Science. B.A., Willamette University, 1955; LL.B., New York University School of Law, 1958; M.A., University of Chicago, 1961; Ph.D., University of Chicago, 1964.

Schulman, Gary I., Ph.D., Assistant Professor of Sociology. B.A., Brooklyn College, 1959; M.A., Stanford University, 1961; Ph.D., 1965.

Schwartz, Arthur, Ph.D., Associate Professor of Linguistics. B.S.S., City College of New York, 1951; M.A., Lehigh University, Bethlehem, Pa., 1958; Ph.D., University of Wisconsin, 1961.

Schwyzer, Hubert R. G., Ph.D., Associate Professor of Philosophy. B.A., University of Reading, 1958; M.A., University of California (Berkeley), 1963; Ph.D., 1968.

Seefeld, Kermit A., Ed.D., Professor of Education. B.Ed., Wisconsin State University (Oshkosh), 1932; M.Ed., Colorado State University, 1946; Ed.D., Stanford University, 1949.

Seidenberg, Burt H., Ph.D., Assistant Professor of German. B.A., Stanford University, 1961; M.A., San Francisco State College, 1963; Ph.D., Stanford, University, 1968.

Selwood, Pierce W., Ph.D., Professor of Chemistry. A.B., University of British Columbia, 1927; Ph.D., University of Illinois, 1931.

Sena, Jorge de, Ph.D. and Livre-Docente, Professor of Portuguese and Comparative Literature. Licenciado, Faculdade de Engenharia da Universidade do Porto, Portugal, 1944; Ph.D. and Livre Docente, Universidade do São Paulo, Brazil, 1964.

Serrano-Plaja, Arturo, Licenciado en Letras, Professor of Spanish. B.A., Instituto del Cardenal Cisneros, Madrid, 1926; LL., Facultad de Filosofía y Letras, Universidad de Madrid, 1934.

Service, Elman R., Ph.D., Professor of Anthropology. B.A., University of Michigan, Ann Arbor, 1941; Ph.D., Columbia University, 1950.

Sesonske, Alexander, Ph.D., Professor of Philosophy. A.B., University of California (Los Angeles), 1949; Ph.D., 1954.

Severy, Hazel W., M.A., D.Sci.O., Professor of Chemistry, Emeritus. A.B., Stanford University, 1907; M.A., 1921; D.Sci.O., Osteopathic College of Physicians and Surgeons, 1914.

Shapiro, Perry, Ph.D., Assistant Professor of Economics. A.B., University of California (Berkeley), 1962; M.A., 1966; Ph.D., 1968.

Shapiro, Stewart B., Ph.D., Professor of Education. B.S., Lebanon Valley College, 1940; M.S., Penn State College, 1942; Ph.D., University of Southern California, 1950.

Sharrer, Harvey L., Ph.D., Assistant Professor of Spanish. B.A., University of California, 1965; University of California (Los Angeles), 1970.

Sherman, A. Robert, Ph.D., Assistant Professor of Psychology. A.B., Columbia College, 1964; M.S., Yale University, 1966; Ph.D., Yale University, 1969.

Shibutani, Tamotsu, Ph.D., Professor of Sociology. A.B., University of California (Berkeley), 1942; M.A., University of Chicago, 1944; Ph.D., 1948.

Shirk, Albert E., Jr., Ph.D., Assistant Professor of History. B.A., Pomona College, 1960; M.A., Harvard University, 1962. Ph.D., Harvard University, 1968.

Shook, Ruth E., B.A., Associate in Home Economics. B.A., Whittier College, 1953.

Silbernagel, Bernard G. Ph.D., Assistant Professor of Physics. B.S., Yale University, 1962; M.S., University of California (San Diego), 1964; Ph.D., 1966.

Silverman, John M., Ph.D., Assistant Professor of English. B.A., University of British Columbia, 1959; M.A., Pennsylvania State University, 1962; Ph.D., University of Washington, 1966.

Simons, Jacqueline, Lecturer in French. Licencié ès-Lettres, Université D'Aix-Marseille, 1962.

Simons, Stephen, Ph.D., Associate Professor of Mathematics. B.A., Trinity College, Cambridge, England, 1959; Ph.D., 1962.

Skalnik, John G., D. Eng., Professor of Electrical Engineering. B.S., Oklahoma State University, 1944; M.Eng., Yale University, 1947; D.Eng., 1955.

Skubic, Elvera, Ph.D., Professor of Ergonomics and Physical Education. B.S., University of Illinois, 1940; M.S., University of California (Los Angeles), 1948; Ph.D., University of Southern California, 1954.

Slaughter, Mary M., Ph.D., Assistant Professor of English. B.S., University of Wisconsin, 1962; M.S., 1963, Ph.D., University of Wisconsin, 1968.

Sloss, James M., Ph.D., Associate Professor of Mathematics. A.B., Pomona College, 1953; Ph.D., University of California (Berkeley), 1962.

Smith, Dale M., Ph.D., Associate Professor of Botany. B.S., Indiana University, 1950; M.S., Purdue University, 1952; Ph.D., Indiana University, 1957.

Smith, Emerson W., B.A., Assistant Supervisor of Physical Activities. B.A., University of California (Santa Barbara), 1965.

Smith, James D., Ph.D., Assistant Professor of Art. B.A., Southern University, 1952; M.F.A., University of Southern California, 1956; Ph.D., University of Oregon, 1969.

Smith, Jessie E., Ph.D., Lecturer in Spanish. A.B., Stanford University, 1916; M.A., 1917; Ph.D., University of Liège, Belgium, 1925.

Smith, Robert B., B.S., Lecturer of Sociology. B.S., Washington University (St. Louis), 1958.

Smith, Roulette W., M.S., Acting Assistant Professor of Education and Psychology; Specialist, Computer Center. B.S., Morehouse College, 1961; M.S. (Mathematics), Stanford University, 1964; M.S. (Computer Science), Stanford University, 1965.

Smitheram, Mary Lou H., M.A., Associate in Speech. A.B., Mills College, 1950; M.A., Bryn Mawr College, 1951.

Snidecor, John C., Ph.D., Professor of Speech. A.B., University of California (Berkeley), 1931; M.A., State University of Iowa, 1937; Ph.D., 1940.

Sonnino, Paul M., Ph.D., Associate Professor of History. B.A., University of California (Los Angeles), 1952; M.A., U.C.L.A., 1953; Ph.D., 1964.

Snow, R. J., Ph.D., Assistant Professor of Political Science. B.A., University of Utah, 1962; M.A., University of Utah, 1964 (History); M.A., Northwestern University, 1965 (Political Science); Doctor of Philosophy, Northwestern University, 1966.

Sonier, Joseph Ivan, Licence, Acting Assistant Professor of French. Licence, University of Paris (Sorbonne), 1964; Ph.D., Candidate, University of Illinois.

Sonquist, John A., Ph.D., Associate Professor of Sociology. B.A., University of Chicago, 1951; Ph.D., University of Chicago, 1969.

Soules, Roy L., M.S., Professor of Industrial Arts, Emeritus. A.B., University of California (Santa Barbara), 1926; M.S., University of Southern California, 1935.

Souza, Roberto de, Profesor en Letras, Assistant Professor of Spanish. B.A., Universidad Madrid, 1964.

Sparrow, Patricia, Ph.D., Associate Professor of Dance. M.A., New York University, 1960; Ph.D., 1963.

Spaulding, Albert C., Ph.D., Professor of Anthropology. B.A., Montana State University, 1935; M.A., University of Michigan, 1937; Ph.D., Columbia University, 1946.

Spaulding, Charles B., Ph.D., Professor of Sociology. A.B., University of Southern California, 1932; M.A., 1933; Ph.D., 1939.

Spears, Sarah Jane, M.M., Lecturer in Music. M.M., University of Illinois, 1969.

Speirs, Logan, M.A., Assistant Professor of English. B.A., Cambridge University, 1960; M.A., 1964.

Sprecher, David A., Ph.D., Associate Professor of Mathematics. A.B., University of Bridgeport, 1958; Ph.D., University of Maryland, 1963.

Stear, Edwin B., Ph.D., Associate Professor of Electrical Engineering. B.S., Bradley University, 1954; M.S., University of Southern California, 1956; Ph.D., University of California (Los Angeles), 1961.

Steiner, Thomas R., Ph.D., Assistant Professor of English. B.A., Cornell University, 1955; M.A., Columbia University, 1960; Ph.D., 1967.

Steinhauer, Harry, Ph.D., Professor of German, Emeritus. A.B., University College (Toronto), 1927; M.A., University of Toronto, 1928; Ph.D., 1937.

Stelmach, George E., Ed.D., Assistant Professor of Ergonomics and Physical Education. B.S., University of Illinois, 1961; M.A., University of California (Berkeley), 1964; Ed.D., 1967.

Stephens, Alan A., Ph.D., Professor of English. A.B., University of Denver, 1949; M.A., 1950; Ph.D., University of Missouri, 1954.

Stillman, William E., M.A., Acting Instructor of History. A.B., Indiana University, 1960; M.A., University of California, Berkeley, 1965.

Stock, Frances Patricia, M.S., Assistant Supervisor of Physical Activities. B.S., University of Oregon, 1959; M.S., 1965.

Stough, Charlotte, Ph.D., Associate Professor of Philosophy. B.A., University of Michigan, 1951; M.A., University of California (Berkeley), 1961; Ph.D., 1965.

Straits, Bruce C., Ph.D., Assistant Professor of Sociology. B.S., Northwestern University, 1961; M.A., University of Chicago, 1964; Ph.D., 1967.

Strasburg, Leland K., M.F.A., Lecturer in Dramatic Art. B.F.A., University of Utah, 1968; M.F.A., 1970.

Sturm, Ernest, Ph.D., Assistant Professor of French. B.A., Brown University, 1955; LL.B., New York University School of Law, 1959; M.A., Columbia, 1962; Ph.D., 1967.

Stuurman, Douwe, M.A., B.Litt. (Oxon.), Associate Professor of English. A.B., Calvin College, 1931; M.A., University of Oregon, 1933; B.Litt. (Oxon.), Oxford University, 1936.

Sugar, Robert L., Ph.D., Associate Professor of Physics. A.B., Harvard College, 1960; Ph.D., Princeton University, 1964.

Sullivan, James J., Ph.D., Assistant Professor of Economics. B.A., University of California (Santa Barbara), 1961; M.A., 1963, Ph.D., Johns Hopkins University, 1968.

Suwara, Rudolph, B.S., Assistant Supervisor of Physical Activities. B.S., City College of the City University of New York, 1965; M.S., University of California (Los Angeles), 1970.

Swander, Homer D., Ph.D., Associate Professor of English. A.B., University of Michigan, 1943; M.A., 1947; Ph.D., 1953.

Sweeney, Beatrice M., Ph.D., Associate Professor of Biology. A.B., Smith College, 1936; Ph.D., Radcliffe, 1942.

Sylvester, Arthur G., Ph.D., Assistant Professor of Geology. B.A., Pomona College, 1959; M.A., University of California, Los Angeles, 1963; Ph.D., University of California, Los Angeles, 1966.

Symons, Donald A., M.A., Acting Assistant Professor of Anthropology. B.A., University of California (Berkeley), 1964; M.A., 1969.

Taborsky, George, Ph.D., Associate Professor of Biochemistry. B.S., Brown University, 1951; Ph.D., Yale University, 1956.

Tacionis, Frances R., M.A., Lecturer in Home Economics. B.S., New Jersey State Teachers College, 1943; M.A., New York University, 1946.

Tanaka, Kashihi, Ph.D., Assistant Professor of Japanese. Ph.D., Claremont Graduate School, 1966; M.A., Kokugakuin University, 1962; Ph.D., 1960.

Taylor, Louie S., Ed.D., Professor of Industrial Arts, Emeritus. A.B., Santa Barbara State Teachers College, 1934; M.A., Claremont Colleges, 1939; Ed.D., Oregon State College, 1951.

Taylor, Wesley B., Jr., B.S., Captain, Infantry, Assistant Professor of Military Science. B.S., U. S. Military Academy, 1965.

Temmer, Mark J., Ph.D., Professor of French. A.B., Colby College, 1942; M.A., Yale University, 1947; Ph.D., 1952.

Thomas, R. Murray, Ph.D., Professor of Education. A.B., Colorado State University, 1943; M.A., 1944; Ph.D., Stanford University, 1950.

Thomas, Robert C., M.F.A., Professor of Art. A.B., University of California (Santa Barbara), 1951; M.F.A., California College of Arts and Crafts, 1952.

Thompson, Eleanor A., Lecturer of Subject A. A.B., University of Kansas, 1936; M.A., University of Illinois, 1938.

Thompson, Robert C., Ph.D., Professor of Mathematics. B.A., University of British Columbia, 1954; M.A., 1956; Ph.D., California Institute of Technology, 1960.

Thomson, William T., Ph.D., Professor of Mechanical Engineering. B.S., University of California (Berkeley), 1933; M.S., 1934; Ph.D., 1938.

Thorpe, Maner L., B.A., Lecturer in Anthropology. B.A., University of California (Berkeley), 1957.

Tilton, George R., Ph.D., Professor of Geology. B.S., University of Illinois, 1947; Ph.D., University of Chicago, 1951.

Tobin, Frank J., Ph.D., Assistant Professor of German. M.A., Marquette University, 1964; Ph.D., Stanford University, 1967.

Tobin, Ronald W., Ph.D., Professor of French. A.B., St. Peter's College, 1957; M.A., Princeton University, 1959; Ph.D., Princeton University, 1962.

Triplett, Edward L., Ph.D., Associate Professor of Biology. A.B., Stanford University, 1951; Ph.D., 1956.

Tunell, George, Ph.D., Professor of Geochemistry, Emeritus. B.S., Harvard University, 1922, Ph.D., Harvard University, 1930.

Turner, Charles E., Jr., B.A., Major, Armor, Associate Professor of Military Science. B.A., The Citadel College, 1962.

Turner, Frederick, B.Litt., Assistant Professor of English. B.A. (Oxon.), Oxford University, 1965; B.Litt. (Oxon.), 1967.

Turner, Henry A., Ph.D., Professor of Political Science. B.S., Northwest Missouri State College, 1939; M.A., University of Missouri, 1941; Ph.D., University of Chicago, 1950.

VanDeman, Dorothy D., M.A., Professor of Education, Emeritus. A.B., Whittier College, 1931; M.A., Claremont Colleges, 1934.

Van Fossen, Gladys R., M.A., Associate Professor of Ergonomics and Physical Education, Emeritus. A.B., University of Minnesota, 1921; M.A., Columbia University, 1931.

Vanyo, James Patrick, Ph.D., Assistant Professor of Mechanical Engineering, University of California (Los Angeles), 1969.

Varner, Miles A., M.F.A., Assistant Professor of Art. B.A., Beloit College, 1962; M.F.A., Rhode Island School of Design, 1964.

Vereno, Matthias, Ph.D., Visiting Professor of Religious Studies. Ph.D., University of Tubingen, 1953.

Verleger, Philip K., Jr., A.B., Acting Assistant Professor of Economics. A.B., Cornell University, 1966.

vonSomogyi, Zoltan, Master Coach, Assistant Supervisor of Physical Activities. Teacher Diploma P.E., Physical Education College of University of Budapest, Hungary, 1941; Master Coach of Soccer, Budapest, Hungary, 1942; Master Coach of Fencing, Budapest, Hungary, 1943; Special Certificate for working under Doctors' Supervision: Rehabilitation and Orthopedic Gymnastics, Budapest, Hungary, 1944.

Voorhies, Barbara, Ph.D., Visiting Assistant Professor of Anthropology. B.S., Tufts University, 1961; Ph.D., Yale University, 1969.

Votey, Harold L., Jr., Ph.D., Assistant Professor of Economics. B.B.A., University of Michigan, 1948; M.B.A., 1949; Ph.D., University of California, Berkeley, 1968.

Wachtel, Albert, Ph.D., Assistant Professor of English. B.A., Queens College, 1960; Ph.D., State University of New York at Buffalo, 1968.

Wade, Glen, Ph.D., Professor of Electrical Engineering. B.S., University of Utah, 1948; M.S., 1949; Ph.D., Stanford University, 1954.

Wales, Bruce A., Ph.D., Assistant Professor of Botany. Rutgers University, B.S., 1959; M.S., 1966; Ph.D., 1969.

Walker, Corlette R., Ph.D., Lecturer in Art. B.A., Stanford University, 1946; M.A., 1948; Ph.D., Bryn Mawr, 1969.

Walker, Philip D., Ph.D., Professor of French. A.B., Yale University, 1947; M.A., 1951; Ph.D., 1956.

Walker, William C., Ph.D., Professor of Physics. A.B., University of California (Santa Barbara), 1950; M.S., University of Southern California, 1953; Ph.D., 1955.

Walters, James L., Ph.D., Associate Professor of Biology. B.S., University of Chicago, 1937; Ph.D., University of California (Berkeley), 1939.

Walters, Marta S., Ph.D., Research Associate in Biology. A.B., University of California (Berkeley), 1935; M.S., 1937; Ph.D., 1944.

Walton, Lewis F., Ph.D., Professor of Mathematics. B.S., Emory University, 1929; M.S., 1931; Ph.D., University of California (Berkeley), 1940.

Warshaw, Howard, Professor of Art.

Waterman, John T., Ph.D., Professor of German. B.A., Concordia Seminary, 1940; M.A., Washington University, 1945; Ph.D., University of California (Los Angeles), 1949.

Weaver, Donald W., Ph.D., Associate Professor of Geology. A.B., University of California (Berkeley), 1954; M.A., 1957; Ph.D., 1960.

Weaver, L. Purcell, M.A., Lecturer in Classics. B.A., Cambridge University, 1930; M.A., 1935.

Webb, Robert W., Ph.D., Professor of Geology. A.B., University of California (Los Angeles), 1931; M.S., California Institute of Technology, 1932; Ph.D., 1937.

Weintraub, Robert E., Ph.D., Professor of Economics. B.A., Williams College, 1948; M.A., University of Chicago, 1952; Ph.D., 1954.

Weiss, Max L., Ph.D., Associate Professor of Mathematics. A.B., Yale University, 1955; M.S., Cornell University, 1958; Ph.D., University of Washington, 1962.

Weissglass, Julian, Ph.D., Assistant Professor of Mathematics. B.A., Hamilton College, 1962; M.A., University of Wisconsin, 1964; Ph.D., 1967.

Wendell, Charles, Ph.D., Assistant Professor of Arabic. B.A., New School for Social Research, 1953; Ph.D., University of California (Los Angeles), 1967.

Wenner, Adrian M., Ph.D., Associate Professor of Biology. B.S., Gustavus Adolphus College, 1951; M.A., Chico State College, 1955; Ph.D., University of Michigan, 1961.

Werner, Mrs. Linda Sue, B.A., Junior Supervisor of Physical Activities, A.A., Stephens College for Women, Columbia Missouri, 1965; B.A., University of Illinois, Champaign, Illinois, 1967.

Wesson, Robert G., Ph.D., Associate Professor of Political Science. A.B., University of Arizona, 1940; M.A., Fletcher School of Law and Diplomacy, 1941; Ph.D., Columbia University, 1961.

Westra, Dorothy, M.S.M., Associate Professor of Music. B.S., Teachers College, Columbia University, 1934; M.S.M., Union Theological Seminary, 1936.

Wheatley, Jon, Ph.D., Professor of Philosophy. B.A., McGill University, 1952; M.A., University of British Columbia, 1957; Ph.D., University of London, 1962.

Winchell, Cedric R., M.A., Acting Assistant Professor in Dramatic Art. B.A., California State College (San Diego), 1963; M.A., 1964.

Wieder, D. Lawrence, Ph.D., Assistant Professor of Sociology. B.A., University of California (Santa Barbara), 1960; M.A., University of California (Los Angeles), 1963; Ph.D., 1969.

Wienpahl, Paul D., Ph.D., Professor of Philosophy. A.B., University of California (Los Angeles), 1937; M.A., 1939; Ph.D., 1946.

Wilder, Raymond L., Ph.D., Visiting Professor of Mathematics. Ph.B., Brown University, 1920; M.S., 1921; Ph.D., University of Texas, 1923.

Wilkins, Burleigh T., Ph.D., Professor of Philosophy. B.A., Duke University, 1952; M.A., Harvard University, 1954; M.A., Princeton University, 1963; Ph.D., 1965.

Williamson, Joan B., Ph.D., Assistant Professor of French. M.A., Middlebury College (French), 1960; M.A., Harvard University (Romance Philology & Old French Literature), 1961; Ph.D., 1966.

Williamson, Samuel J., Sc.D. Lecturer in Physics. S.B., Massachusetts Institute of Technology, 1961; Sc.D., Massachusetts Institute of Technology, 1965.

Willick, Daniel H., Ph.D., Assistant Professor of Sociology. A.B., University of California (Los Angeles), 1964; M.A., University of Chicago, 1966; Ph.D., 1967.

Willson, Lawrence, Ph.D., Professor of English. A.B., Wesleyan University, 1934; M.A., Yale University, 1942; Ph.D., 1944.

Wilson, Clayton, M.Mus., Professor of Music. B.Mus.Ed., Northwestern University, 1941; M.Mus., 1942.

Wilson, John A. R., Ed.D., Professor of Education. A.B., University of British Columbia, 1932; M.A., 1939; Ed.D., Oregon State College, 1951.

Wilson, Robert E., M.A., Lecturer in Spanish. A.B., University of Arizona, 1933; M.A., 1934. Director, U.C. Study Center, Mexico City, 1968.

Wilson, Thomas P., PhD., Associate Professor of Sociology. B.A., Reed College, 1955; Ph.D., Columbia University, 1965.

Wilton, Wilton M., Ed.D., Supervisor of Physical Activities. A.B., University of California (Santa Barbara), 1936; M.A., Claremont Colleges, 1947; Ed.D., University of California (Los Angeles), 1957.

Winnick, Andrew J., Ph.D., Assistant Professor of Economics. B.A., (Mathematics and Economics), University of California (Berkeley), 1961; M.A., University of Wisconsin, 1967; Ph.D., University of Wisconsin, 1970.

Wise, William S., Ph.D., Associate Professor of Geology. B.S., Stanford University, 1955; M.S., 1958; Ph.D., Johns Hopkins University, 1961.

Wong, Raymond Y., Ph.D., Assistant Professor of Mathematics. B.S., Hong Kong Baptist College, 1961; Ph.D., Louisiana State University, 1966.

Wonner, Paul, M.A., Lecturer in Art. B.A., University of California (Berkeley) 1942; B.A. 1952; M.A. 1953; M.L.S. 1955.

Wood, Roger C., Ph.D., Associate Professor of Electrical Engineering. B.S., University of Minnesota, 1954; M.S., 1956; Ph.D., University of California (Los Angeles), 1966.

Woodhouse, C. Douglas, LL.M., Professor of Mineralogy, Emiterus. A.B., Williams College, 1910; LL.B., Columbia University, 1913; LL.M., University of California (Berkeley), 1925.

Woolsey, Lucille H., Ph.D., Associate Professor of Home Economics. B.S., University of Wisconsin, 1939; M.S., University of Minnesota, 1942; Ph.D., Purdue University, 1956.

Wuebben, Paul L., Ph.D., Assistant Professor of Sociology. B.A., State University of Iowa, 1960; M.S., University of Wisconsin, 1963; Ph.D., 1966.

Wyner, Alan J., Ph.D., Assistant Professor of Political Science. B.A., Northwestern University, 1964; M.A., Ohio State University, 1965; Ph.D., 1967.

Yaqub, Adil M., Ph.D., Professor of Mathematics. A.B., University of California (Berkeley), 1950; M.A., 1951; Ph.D., 1955.

Yaqub, Nancy S., A.B., Lecturer in Spanish. A.B., University of California (Berkeley), 1952.

Yearwood, Homero E., M.R.E., Acting Assistant Professor in Sociology. A.B., New Mexico Highlands University, 1956; B.D., Golden Gate Theological Seminary, 1959; M.R.E., Golden Gate Theological Seminary, 1960.

Young, David C., Ph.D., Associate Professor of Classics. B.A., University of Nebraska, 1959; M.A., State University of Iowa, 1960; Ph.D., 1963.

Young, Harvey, Lecturer in Art.

Young, Landon, M.M., Assistant Professor of Music. B.A., Harvard University, 1959; B.Mus., New England Conservatory of Music, 1959; M.M., Columbia University, 1961.

Zaller, Robert M., Acting Assistant Professor of History. B.A., Queen's College, New York; M.A., Washington University, St. Louis, 1963; Ph.D., 1968.

Zamora, Carlos., A.B., Assistant Professor of Spanish. A.B., University of California (Los Angeles), 1959; Ph.D., UCLA, 1968.

Zimmer, Jules M., Ed. D., Associate Professor of Education. B.S., New York University, 1952; M.S., Hunter College, New York City, 1960; Ed.D., Arizona State University (Tempe), 1964.

Zimmerman, Don H., Ph.D., Assistant Professor of Sociology. B.A., University of California (Los Angeles), 1961; M.A., 1963; Ph.D., 1966.

Zimmerman, Everett, Ph.D., Assistant Professor of English. B.A., Bob Jones University, 1958; M.A., Pennsylvania State University, 1961; Ph.D., 1966.

Zytowski, Carl B., M.A., Professor of Music. B.Mus., St. Louis Institute of Music, 1949; M.A., University of Washington, 1951.

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1971–1972

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